RISC user

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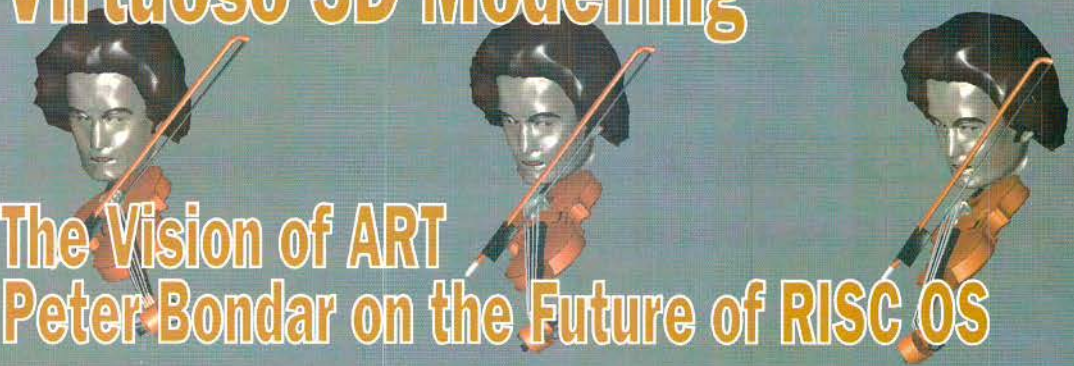
The magazine for users of Acorn RISC computers

TopModel Reviewed
Virtuoso 3D Modelling



The Vision of ART
Peter Bondar on the Future of RISC OS

Networking Issue:

- What's Cooking at ANT?
- ArcShare and OmniClient Reviewed
- Acorn Resources on the Internet

THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

RISC User

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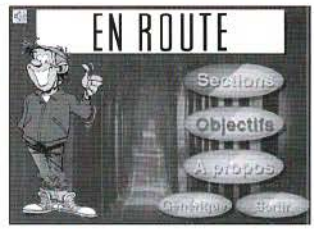

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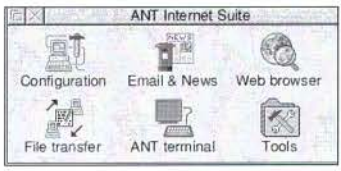

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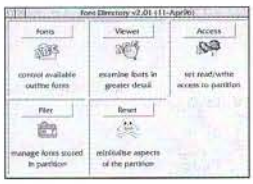

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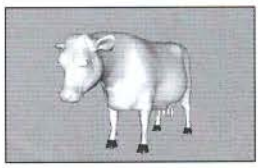

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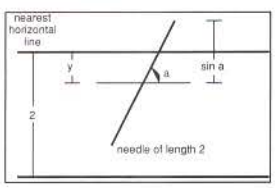

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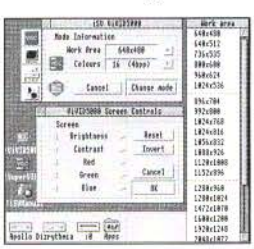
Is your Risc PC nostalgic for Archimedes games



or your A5000 jealous of the Risc PC's large screen modes? If so, here's where to look

So, now we finally know the name: Xemplar Education Limited. It will be interesting to see what kind of dent it makes on the UK educational market. There is no denying that the company's stated intention to make Acorn and Apple systems work together whilst still developing each can only really be seen in a positive light. Schools can't afford to throw away all their old Acorn machines and buy Macs instead, even if they wanted to, so there is little danger of large-scale migration away from our system.

Naturally there will always be those who insist on buying PCs simply because they're "industry standard" (whatever they think that means); but the fact that the only real opposition for PCs in schools has teamed up into one dedicated company is quite persuasive. It looks more like a well-considered effort to take the most intelligent approach to the problem than a last-gasp attempt to survive by either company. Acorn Education is no more, and its successor has a far better chance of making a real impact. The Acorn that we always used to think of as the technological innovator is now ART. Xemplar should be thought of as being like ARM; closely linked, but nevertheless a company apart. In a very real way, Acorn's educational anchor has been cut loose, and the company is now much freer to rise to those technological heights of which we know it is capable.

It's interesting to note that the Tesco scheme has been advertising Acorn Pentium PCs because, as far as we know, no such beasts exist; and Brendan O'Sullivan has stated that Xemplar is not interested in supplying PCs, except for use in schools administration. Even if Xemplar does sell PCs, I would much rather see the money going to them than to someone else. If a school is determined to buy PCs and will not consider an alternative system, then why not at least let them make that choice and benefit from their custom?

It may look to some people as though in forming Xemplar, Acorn is being bailed out by Apple; indeed, that was the initial (and entirely foreseeable) press reaction. I wonder, though, if the reverse is actually closer to the truth. Acorn is tiny and has had a lot of bad fortune in the past, but now it's making all the right moves and is suddenly being taken very seriously again. On the other hand, Apple made a loss of 70 million dollars last quarter, and has announced a simply staggering loss of 740 million dollars for the first quarter of this year. Who's helping whom, I wonder? The fact is that Apple was very interested indeed in the Oracle deal, but Acorn had the better technology and beat them. Apple will pull through, of course; it's well established and has many advocates. In the end, though, it seems quite fitting to me that, after all the bluster about industry-standard PCs, once Acorn-designed Network Computers find their way into schools they will be essentially the same as the RISC OS machines that they've had there for years.

Richard Hallas

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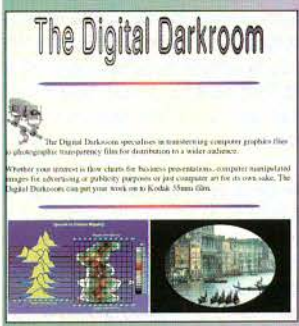
Designs on the Web



Malibran has launched a new Cybervillage on the World Wide Web, *Netfolio*, which is aimed at both the amateur and professional printing, publishing and design markets.

Netfolio contains pages on graphic artists, photographers, designers, printers and typesetters, and there will also be magazine articles and other material relevant to people involved in publishing. The site is not intended to be Acorn-specific, but services which do relate to Acorn users will be highlighted accordingly.

Web space in Netfolio may be rented from Malibran for prices starting from £5 a month, and links from Netfolio to other sites may be purchased for £15 per year. Visit Netfolio on:
`http://www.cybervillage.co.uk/folio/`

Setting a good Xample

After much speculation and many fruit and nut jokes, the name of the new Acorn/Apple joint venture company has finally been announced: it is Xemplar Education Limited (pronounced "Exemplar" rather than "Zemplar"), and it began trading on 2nd April. The company will support all existing Acorn and Apple computer products and will continue to sell a wide range of machines from both companies, with a priority being to introduce products which increase the interoperability of the two platforms. Xemplar Education may be contacted at: Xemplar Education Limited, Vision Park, Histon, Cambridge CB4 4AE, Web `http://www.xemplar.co.uk/`*, tel. 01223 724724, fax 01223 724324.*

Planning the road ahead

The Stork, an ARM7500-based prototype portable computer

ARM has revealed various plans for the future of its processor family. In February, Oracle's Chairman, Larry Ellison, made a presentation on his vision of the future of network computers in which he stated that the first generation of these machines would be based on the ARM7500 "multimedia system on a chip". The first such products to employ the chip are set-top boxes from Online Media, and Internet appliances such as the ViewCall *WEBster* box and the Teknema *Easy Rider*.

ARM expects to produce samples of the ARM7500FE this summer, which will have integrated floating point hardware and increased memory bandwidth. This is of significant importance in view of the multimedia applications for the chip, as it will greatly improve its 3D graphics and Java performance. Next year, ARM expects to produce the ARM8500, which will equate to the ARM7500FE, but with more than double its core CPU performance.

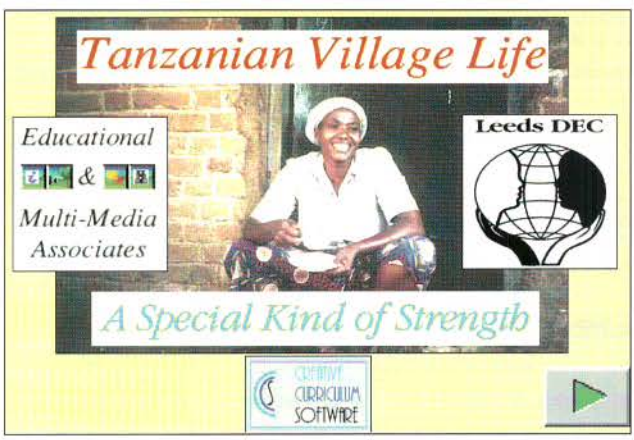
Also anticipated next year is the integrated StrongARM1500. No firm details are available at this time, but given the announcements of floating point versions of the integrated ARM7 and ARM8 products, it seems reasonable to suppose that this chip, too, will have integrated floating point hardware. Hence, it seems that the only really valid criticism of the StrongARM, the absence of floating point capability, is likely to be addressed within the foreseeable future.

Full details are available on the ARM Web page:
`http://www.arm.com/`

The ARM7500 processor also forms the basis of the projected new ART portable, the Stork. Although there are as yet no details about availability, ART has now released a picture of a prototype machine which looks most enticing. Perhaps we may even see a version based on the StrongARM1500.

New educational releases

Yorkshire International Thomson Multimedia has announced a large range of new educational CD-ROMs, all priced at £39.95 (inc. VAT) and available for either Acorn or PC. *Max and the Machines* and *Maximania* are designed to develop reading skills in 4- to 7-year-olds, whilst for older children, *Electricity and Magnetism* is available in two editions for 7- to 10-year-olds and 11- to 16-year-olds. *Science Explorer* allows 7- to 12-year-olds to select and carry out experiments on screen, whilst *Unterwegs*, aimed at 11- to 16-year-olds, aids elementary German language courses or self-study. The CD-ROMs will be launched at the Home PC show at Earls Court on 30th May. For further details contact Val Mitchell, YITM Ltd, The Television Centre, Leeds LS3 1JS, tel. 0113 243 8283 ext. 5610, fax 0113 243 4884.



Creative Curriculum Software has announced an unusual CD-ROM entitled *Tanzanian Village Life - "A Special Kind of Strength"*. Aimed at pupils of age 6 and upwards, the disc features the everyday life of a family in Sanawari, Northern Tanzania. Resources on the disc include pictures, maps, plans, text, video and sounds, along with over 70 activities. The disc is available on its own for £49, or with a teacher's handbook and 50-minute video for £69. A site licence costs £99. All prices exclude p&p at £1.95 and VAT. Contact Creative Curriculum Software, 5 Clover Hill Road, Savile Park, Halifax HX1 2YG, tel. 01422 340524, fax. 01422 346388.

SEMERC has announced a new talking word processor and early DTP package, *Pages*. Intended for young children and special needs pupils, Pages features picture bank and word bank facilities which allow common words and pictures to be stored in small windows and inserted easily into a document. The package costs £49 for a single user or £98 (both prices ex. VAT) for a site licence. Further information is available from Trish Hornsey, SEMERC, 1 Broadbent Road, Watersheddings, Oldham OL1 4LB, tel. 0161 627 4469, fax 0161 627 2381.

Tesco scheme Xtended

The Tesco Computers for Schools scheme has entered its fifth year of operation, but is running in partnership with Xemplar Education rather than the now-defunct Acorn Education. For the first time, and reflecting the nature of Xemplar, the scheme will offer Acorn, Apple and PC computers along with other equipment and resources. The 189 different items on offer include the Acorn Risc PC, A7000 and Pocket Book together with the Apple Macintosh Performa 5200 and a range of Acorn Pentium PCs, though the latter beasts have not yet been seen 'in the plastic'.

Until the scheme closes on 26th May, shoppers at Tesco will receive one computer voucher for every £25 they spend in a single transaction, with the lowest number of vouchers required for a computer being 1600 for a 1Mb Pocket Book II. (That equates to one Pocket Book II being worth a minimum of £40,000 spent at Tesco!) A 2Mb A3020 can be had for 1800 vouchers, 200 less than the previous year. Tesco is also allowing vouchers collected but not redeemed in 1995 to be carried over to the 1996 scheme, thereby letting smaller schools save up for a more valuable item; and Tesco has already committed itself to the scheme in 1997, again giving schools the chance to collect vouchers over a two-year period.

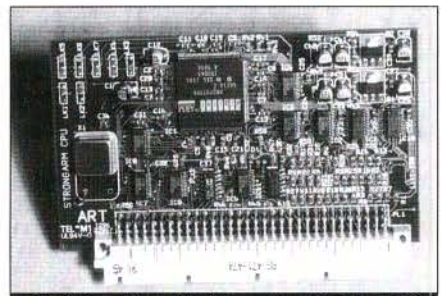
Since 1992, over 21,000 computers have been delivered to schools, and over a third of all UK schools have received a total of 80,000 pieces of computer equipment and software, worth £22.4 million altogether. Schools can obtain a Tesco Computers for Schools pack by telephoning 01923 818495.

It's Show time!

Several shows of interest to Acorn users are in the offing. First of all, there is the Wakefield Acorn Spring Show, which has been organised by the Wakefield Acorn Computer Group to fill a gap left by the Harrogate Spring Show. Although the Wakefield event is only taking place on one day, Sunday 19th May, it promises to be a most exciting event. The Show has been organised in conjunction with Acorn Risc Technologies and Acorn User magazine, and has attracted around fifty exhibitors, including Acorn Risc Technologies itself (which will be demonstrating its StrongARM card), ANT, Aleph One, Beebug, Clares, Spacetech and almost all the other famous Acorn names. The venue for the show is Cedar Court Hotel, M1 Junction 39, Denby Dale Road, Calder Grove, Wakefield WF4 3QZ. Those coming by car should leave the M1 at Junction 39 and take the A636 to Denby Dale; Cedar Court is 100 yards on the left. Tickets are priced at £2.50 for adults and £1·50 for children, and the show is open from 10am until 5pm.

The prime date in most Acorn users' diaries, though, is the Acorn World Show, and this year's event will be taking place from Friday 1st until Sunday 3rd November, on two floors in Hall 2 at Wembley. It is planned that there will be a 'fringe' seminar programme on the first day for professional users, and a Web site is already on-line, providing regular updates about show attractions, ticket deals and so on. Point your browser at: `http://www.argonet.co.uk/acorn-world/`

Bringing ART to life



Prototype StrongARM card for the Risc PC

Acorn Risc Technologies has really hit the headlines recently by announcing a StrongARM upgrade card for the Risc PC.

The first experimental card, using prototype silicon, was fired up on 26th March and reached an unexpectedly high internal clock speed of 228MHz, delivering a first benchmark reading of 147,000 Dhrystones whilst running RISC OS. After initial testing and modifications to system software, the performance was greatly increased, first to 290,000 Dhrystones and later to 330,000 Dhrystones. The figures are expected to improve again once production silicon is received from Digital Equipment Corporation.

It was possible for ART to produce a fully working prototype card so soon after the launch of the StrongARM chip itself because of the large amount of work that had already been done on the basic card design. The company has therefore confirmed that it will be producing a cacheless StrongARM upgrade processor card for existing Risc PC users during the third quarter of the year.

The card is reported to feel very quick in use; Acorn has tested various applications with it, including Draw, ArtWorks Viewer, ChangeFSI, Network stack and the InterTalk Web browser. A large JPEG image positioned in a Draw window was said to update instantly during window resize and redraw operations.

The arrival of the card has received a surprising amount of attention in the non-Acorn press, with news items appearing in both technical publications such as Electronics Weekly and more general journals such as The Times. The latter ran a positive story on 10th April in its Interface section, entitled *Acorn's cracking card.*

The StrongARM card, at the stage when it was producing 290,000 Dhrystones, yielded the following test results in comparison with a 40MHz ARM 710 card:

Test	A	B	C	D
40MHz ARM710	2.98	1.78	12.1	13.7
StrongARM SA110	0.72	0.60	4.2	5.3

Test A: JPEG image converted by ChangeFSI into a 256-colour sprite (timings obtained from ChangeFSI)
Test B: As for test A, but converted into 32,000-colour sprite (timings obtained from ChangeFSI)
Test C: Screen redraw of ArtWorks *Apple* file in 256 colours using ArtWorks Viewer (manual timings)
Test D: As for test C, but rendering in 32,000 colours (manual timings)

Benchmarks are as follows:

Processor	Core clock	Dhrystones	Dhrystone MIPs	Ratio
ARM710	40 MHz	52,000	30	1
StrongARM	228 MHz	290,000	166	5.6

The test machine was a Risc PC with VRAM fitted, running Dhrystone 2.1 in a single-tasking shell window.

Since the above tests were performed, ART succeeded in increasing the performance to 330,000 Dhrystones, which would represent a 6.3 times improvement over the ARM710. For general desktop use, an uncached card could be expected to give a 300 to 400% performance improvement over a current ARM710 processor. A cached version of the card would improve further on this, but has not yet been announced officially by ART.

The latest details and performance figures can be found on ART's Web site:
`http://www.art.acorn.co.uk/HOTSTUFF/Home.html`

NEWS IN BRIEF

Mike Matson, who for many years was inextricably linked with 4Mation, has joined Sherston Software. Mike is greatly respected for his educational titles such as *Granny's Garden* and *Guardians of the Greenwood*, and his first product to be published by Sherston will be *Rusty Dreamer* which, according to the press release, uses innovative video animation techniques. *Rusty Dreamer* is planned for launch in September. Further details are available from Sherston Software, Angel House, Sherston, Malmesbury, Wiltshire SN16 0LH, email info@sherston.co.uk, tel. 01666 840433, fax 01666 840048.

A new desktop application development environment has been released by Jaffa Software. *WimpWorks* claims to allow non-technical users to write multitasking programs very easily, without any prior knowledge of Wimp programming. The modular system is built on top of BBC Basic V, and hides the complexity of the Wimp from the novice whilst still allowing access to more advanced programmers. Single-user copies of WimpWorks are available for £25 (fully inclusive) from Andrew Flegg, Jaffa Software, 14 Worthington Close, Henbury, Macclesfield, Cheshire SK11 9NS.

Sibelius 7 has been hitting the airwaves once again. Channel 4's two-part adaptation of *Gulliver's Travels*, broadcast on Easter Sunday and Monday, featured a film score created with Sibelius 7 by Contemporary Media Music Productions. The same team, headed by composer Trevor Jones, also used Sibelius 7 to create the scores for the films *Loch Ness* and *Richard III.*

Last month's *Knuckling under* news story was an April Fool.

Getting a PC Card for your Risc PC ?

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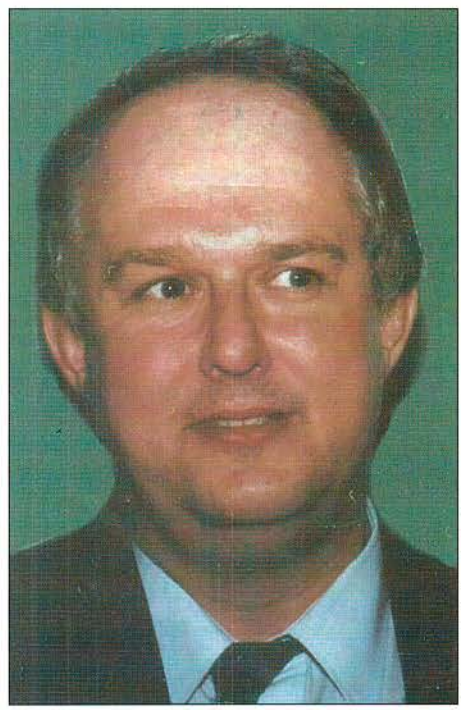
The Vision of ART

Alan Bonsor interviewed Peter Bondar, Managing Director of Acorn Risc Technologies, about his view of the future of Acorn and RISC OS



Photography by Lee Calcraft

Xemplar has stated that it will be working on improving interoperability between RISC OS and Mac OS. What is this actually going to mean? Are we going to see better file compatibility? RISC OS can already support most graphics and sound formats through third party utilities. Will it be better networking support; Acorns running on an Appletalk network, for example? Where are the improvements actually going to be made?

We are working on two sets of activities. The first involves networking and the second involves media and object compatibility. As far as networking is concerned, we plan to produce a version of *Access* which will allow a RISC OS computer to sit in a peer-to-peer network alongside an Apple computer. In the case of *OmniClient*, we plan to add *Appletalk* support, which we had previously stated we were going to do anyway. This will allow a RISC OS machine to sit on an Apple server in a client-server type network.

With regard to media and object compatibility, the *SkyNet* project which delivered *PC Exchange* last October will now, for want of a better expression, do *Mac Exchange*. This will perform a similar function to PC Exchange; you will be able to take a variety of Mac objects (sound, video, text, documents and graphics) and convert them into something which can be read by RISC OS applications, and vice versa.

I've heard on the grapevine that a new version of RISC OS is ready to ship. Does this version of RISC OS offer new features and tools or is it simply a 'patch' upgrade to allow it to run on the new processor cards?

It is a major rewrite which has taken several programmers almost a year to develop. However, as far as new features are concerned, there aren't any. It just runs very fast.

If this version doesn't offer anything new, then, are we ever going to see an enhanced version of RISC OS incorporating lots of flashy new features? Clan disc 5, for example, demonstrates features such as Mac-style renaming of files and directories. Will such features appear in a future version of RISC OS?

The major thing from that angle is the Oracle network computer project that we're involved in. There is a number of substantial developments taking place for that project, and it's our intention to take whatever is appropriate from the project and apply them back to RISC OS. For commercial reasons I cannot discuss what these are, because negotiations are still taking place on access to

certain technologies. However, the fact of the matter is that RISC OS is at the centre of a project which is getting funding an order of magnitude greater than our past investment in RISC OS.

You appear to be very enthusiastic about the future of RISC OS. I have heard that Acorn's board, on the other hand, predicts a very steep decline in the sale of RISC OS machines. Who is now actually responsible for the future of RISC OS, and who is setting its direction?

Given the level of losses that we were incurring last year, a simple management viewpoint said the we simply couldn't carry on doing what we were doing. Now it's a bit like steering a ship: you start to apply a corrective action, something else happens, and as a result of that you appear to be over-correcting, so you start to compensate for that. Look where we were with Acorn and RISC OS when David Lee inherited the situation last year. He decided to apply a lot of corrective action and then; whether we were lucky, or whether it was thanks to the people involved or whatever, we started to get things back on an even keel. The 'RISC OS is dead' attitude which was probably at its zenith a couple of months ago was almost an overshoot from this point because by then the Oracle project had started to gather momentum, with RISC OS being a core component.

The Oracle agreement effectively endorsed RISC OS as a practical working operating system, and as a result of that we are now inundated with people and companies who are very receptive to RISC OS in a way that would have been inconceivable a year ago. The result of this is that we have a situation where RISC OS has returned in a variety of guises to being a mainstream product for the Acorn group. This is one of the reasons that we changed the name of ART from Applied Risc Technologies back to Acorn Risc Technologies.

Today, rather than having to explain about a rather quaint little operating system, designed in England and used by a couple of kids in education, we have an operating system that is liked, paradoxically, for all the reasons that Microsoft Windows is not: it's got a small memory footprint, it's fast, it's ROM-able, etc. Not having a virtual memory system is seen as a major virtue; RISC OS can load in seconds from ROM without any need for a hard drive: a key requirement of a network computer.

Who knows what the state of the nation will be in two or three years' time, but we certainly have no plans to abandon RISC OS, either from an ART perspective or a network computer perspective.

RISC OS is just one of a multitude of technologies which ART licenses and sells to its customers. I believe that you licensed RISC OS to a marine navigation company recently. Could you tell us something about that deal and where it's going to be used?

That's correct. *Raytheon Marine Europe* is part of a large American conglomerate specialising in all sorts of things such as Patriot Missiles, etc. The marine navigation organisation, which has around 3,000 people working in Portsmouth, wants to produce a new generation of high-performance, low-cost marine navigation devices. We did a sales pitch that used the ARM7500 with the JPEG and vector drawing code parts of RISC OS, and they agreed that, compared with everything else, it is the best available.

Are there any other deals like this in the pipeline?

At the moment we have approximately twenty potential customers. I recently spent a week in Japan, visiting a number of ARM licensees and other companies who are interested in our technology. Because of the positive reaction we received over there, we will be setting up a support office in Japan. We have also recently visited a number of companies in Korea who are very interested in our technology. The fundamental fact is that we have changed our whole sales and marketing attitude. In the old days you had to buy a box from us, and it was the same box whether you were purchasing it for education, home or business use. Today, assuming the deal is right, we'll sell anything to anyone, anywhere. Whether you want an operating system, source code, subroutine, schematic or whatever, you can have it; there are no restrictions.

If you have a number of companies who will be purchasing RISC OS, ARM processors, etc., and developing their own computers and in-house systems based around them, it is conceivable that there will be a substantial increase in the number of professional ARM and RISC OS programmers. Do you see any spin-offs from this feeding back into the true Acorn RISC OS Risc PC market?

Again, for commercial reasons I cannot illustrate my answer with solid examples, but you can imagine that, as a result of the network computer initiative, there are certain organisations around the world who have no desire to be left behind when the train leaves the station and therefore have to look at developing RISC OS/ARM versions of their technologies. If but one year ago we'd gone to any one of these organisations and asked them to port their software or hardware to RISC OS, the answer would have been a resounding No. In the case of one particular company, they couldn't be bothered to do it even if we paid them a million pounds; it was just too much time and effort for them. So it's undoubtedly true that as a result of all these changes, more things will come to pass than either would have happened without the Oracle deal or if we'd just carried on as we were doing.

The only problem is that because of commercial, marketing and engineering reasons, not all those things will become apparent very quickly. You can imagine that we are now talking to organisations which might be having a total change of strategy. We couldn't just announce, for example, that *XYZ Corporation* was about to ditch Windows in favour of RISC OS. How they present that is very much in their domain.

If there is a large number of new companies which will be developing software for a RISC OS-based platform of whatever type, one of the principal problems they face is the lack of any serious, professional development systems for RISC OS. Is it possible that new development tools are being developed for RISC OS by any of the major corporations?

It is already true that a number of tools that were not previously available for RISC OS are now being modified or adapted so that programmers can write applications on a cross-platform development basis. In fact, the first one, *Macromedia Director*, was announced virtually a year ago. The *NewsPAD* product that we have already previewed uses Macromedia Director as one of its key technologies. Oracle will also be porting its *Media Objects Structure* to RISC OS to run on the network computers. We may then be in a position to port this to versions of RISC OS that ART offers to its customers. In addition, technologies such as *Java* are also in the frame because of the network computer initiative. The reality is that RISC OS is the only horse in town that actually delivers the performance at the memory footprint at the time-to-market to satisfy network computer requirements. Lots of other companies are claiming to have suitable software and hardware, but I can assure you that when we get together and we show them our technology, and they show us their technology, in every single contest so far we have won hands down in Japan, Korea, the UK and America.

As far as the future of RISC OS is concerned, the new joint venture has publicly declared its intention to switch to Mac OS running on the CHRP platform, with RISC OS running on an optional StrongARM upgrade if desired. This sounds very impressive but also far too expensive for the current education market. From an ART perspective, as RISC OS is still (and probably will remain) the preferred operating system for education, and schools will require a low-cost computer, should ART not perhaps be using its contacts and partnerships with other major hardware manufacturers and software developers to come up with a low-cost ARM/RISC OS-based education system?

This brings me back to what I was saying about the Oracle deal pushing RISC OS to the centre of the Acorn group again. The Oracle view is that there are three strategic markets for the network computer. The first is as a corporate network computer which requires very little maintenance and solves the problem of having to install software upgrades on thousands of different systems. The second is for the home user in a set-top box configuration which plugs into a TV or monitor and telephone line, and provides them with everything from word processing to World Wide Web-surfing facilities.

The third market that Oracle has independently identified for the network computer is the education market on a worldwide basis, where cost is of primary importance. So it's kind of amusing that we've ended up with a situation where the network computer, which by default has to run RISC OS because nothing else is available, has been identified as a key educational product. It is therefore more than conceivable that organisations like Apple in the States (and as a result of that, the joint venture in this country) could end up selling RISC OS-based network computers into education.

The thought that in two or three years' time you will not be able to reach out and touch a device that essentially shows a strong parentage to RISC OS and ARM is almost inconceivable. The idea that RISC OS applets, code and technology will simply disappear is as far-fetched as Windows disappearing.

Do you think that the world is ready for a network computer of the type that everybody is talking about at the moment?

We were recently at dinner with a large American corporation who specifically came over to discuss this point. The safest view is that, if you average out all the different opinions about it, the network computer will not kill off the PC but will rather isolate it like the mini-computer isolated the mainframe, and the PC isolated the mini.

For example, in large corporate organisations, it's clear if you watch executives at work on their PCs that they are essentially in an information-rendering mode; fetching information, displaying it on a monitor, reading it and then taking certain actions such as dashing off an email, forwarding some information to someone else, etc. Most people in these corporations are not buried in complex financial spreadsheets; they are observing data and reacting to it. For these people, the network computer offers them everything they require, while at the same time relieving all the headaches associated with traditional PCs.

As far as the home user is concerned, there is a definite market for the network computer. Firstly, it can act as a 'dumb' device which plugs into the TV and telephone line and allows you to browse the Internet, send and receive letters, play games, etc., with all your data being stored on the service provider's hard drives. There are also a lot of families who already have a PC which is in constant demand at all times; the kids need to do their homework, Mum and Dad need it, etc. A lot of thought is going into how the network computer can be hooked up to the home PC to provide families with a second, low-cost PC. The main PC, with its local storage and modem, could therefore act as both a server and a gateway onto the Internet.

The third market we've already mentioned is that of education. For schools in the UK which already have a good network infrastructure, the network computer could be used in much the same way as an A3000 or an A4000. As far as the rest of the world is concerned, the Far East represents a potentially huge market for network computers. In the UK, one in four people at home have a PC. In China, the number is one in ten thousand. Reducing that even to one in two hundred represents a market for one hundred million PCs or network computers. Network computers provide governments with a low-cost way of rapidly bringing information technology to their countries.

So the jury is out on network computers. It would be ridiculous to suggest that their future is a foregone conclusion, but it's clear that for political, economic and marketing reasons, there are significant opportunities for the network computer.

Unlike when ART was launched last year, you are now responsible for all enthusiast, VAR and non-education sales of Acorn-based computers and technology. You can now basically develop computers yourself, without them having to be ordered by the joint venture or anybody else. Are you going to be doing anything like that?

Yes we already are. I have four business development people who operate in the Pacific Rim, America, the UK and Europe, and they are essentially trying to sell our new technologies and designs such as the NewsPAD and Stork.

Talking about the Stork laptop, ART's business philosophy is that you will sell to anybody who wants to buy your products, provided they order enough of them. There are many existing Acorn users who claim they would buy the Stork. What are your plans for this product?

If Brendan O'Sullivan believes that the joint venture's education customers will buy it and we feel that we have enough customers through our assorted markets, then clearly we would love to put it into production. Obviously, given the mauling that Acorn had in 1995, the last thing that I'm going to do is to build 5,000 products just to have them sitting in a warehouse gathering dust.

Is it therefore likely that we'll see a Stork computer in the near future?

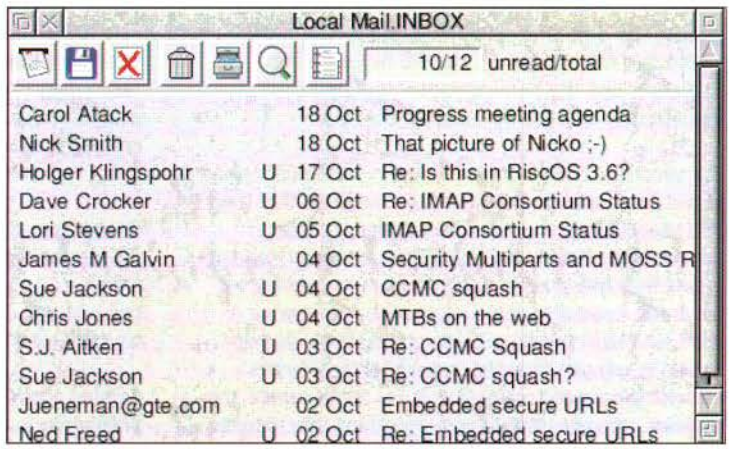
Because of the way the network computer initiative is taking off, anything is possible. It's just a case of setting priorities. We are actively seeking licensees for all our technologies, and we are speaking to companies in the Far East about building both Storks and NewsPADs. Clearly if one of those organisations manufactures them, it will be fairly easy for us to reimport them and, for want of a better description, hand-modify them back to the machine we would have originally built.

Due to space constraints, it was not possible to include the full interview in the magazine. The complete unabridged text is supplied on this month's RISC User disc.

FEATURE

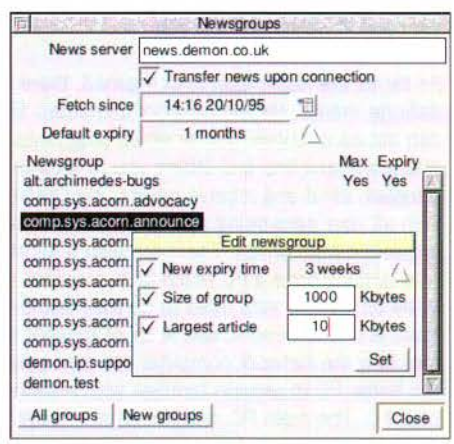
What's Cooking at ANT?

Carol Atack, ANT's Corporate Communications Manager, provides an insider's view of ANT, and Alan Bonsor examines the company and its products

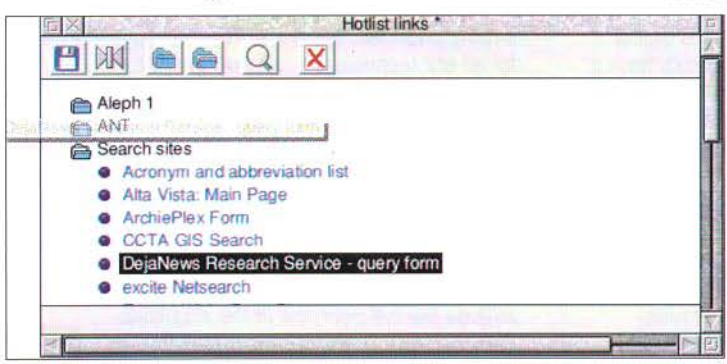

Local Mail.INBOX
10/12 unread/total
Carol Atack 18 Oct Progress meeting agenda
Nick Smith 18 Oct That picture of Nicko ;-)
Holger Klingspohr U 17 Oct Re: Is this in RiscOS 3.6?
Dave Crocker U 06 Oct Re: IMAP Consortium Status
Lori Stevens U 05 Oct IMAP Consortium Status
James M Galvin 04 Oct Security Multiparts and MOSS R
Sue Jackson U 04 Oct CCMC squash
Chris Jones U 04 Oct MTBs on the web
S.J. Aitken U 03 Oct Re: CCMC Squash
Sue Jackson U 03 Oct Re: CCMC squash?
Jueneman@gte.com 02 Oct Embedded secure URLs
Ned Freed U 02 Oct Re: Embedded secure URLs

Marcel's email in-box

This is an incredibly exciting time for everyone involved in the Internet business. The Internet is growing rapidly, with more and more people participating all over the world. It's especially exciting in Cambridge, where our MP reckons that 20,000 of her 70,000 constituents already have Internet access. She and her team, the city council and the county council, have worked together to set up Web pages of local information and to provide free Internet access at six terminals dotted around the city (there's one in the main library, for example). The *Cambridge Online City* project was launched at the end of January this year, and it will be interesting to see how useful it is to people who might never otherwise have accessed the Internet. The Internet has great potential for social change and to become a useful resource for all kinds of people, not just academics and home computer enthusiasts.



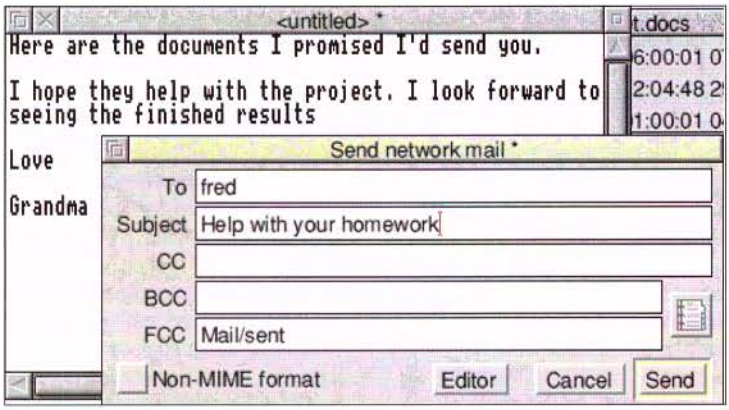
Configuring the news groups you want to receive



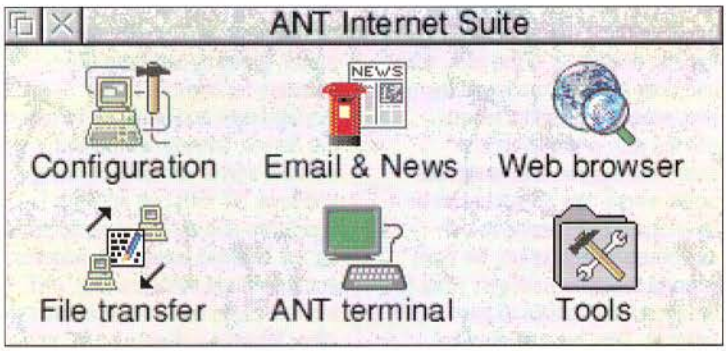
Dragging a Web address to a different location in the Hotlist manager

When you work with Internet technology it's important to remember what the end goals are. There are many controversial aspects to the Internet, such as the dubious content of some discussion groups and the distribution of pornography and racist literature. Traditionally the feeling has been that Internet users should oppose any form of censorship, but what about schools which want to show

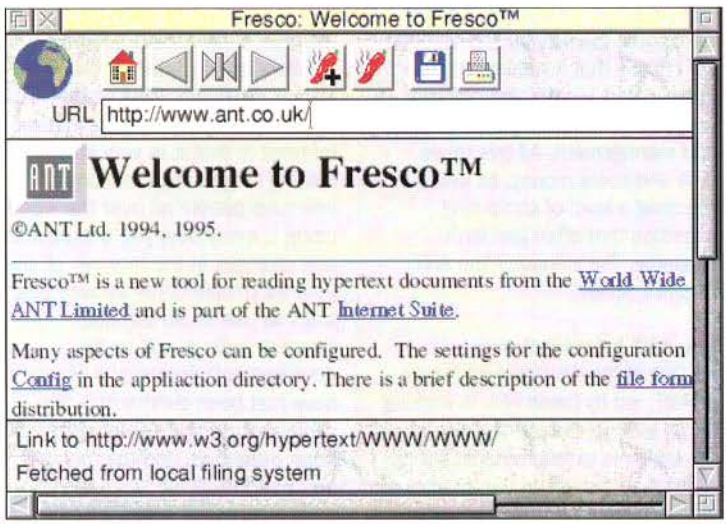
students the good side of the Internet, but can't let them anywhere near the less good bits? One solution is the 'walled garden' approach, offered by BT's *CampusWorld* service, for example. This controls most access to the Internet via Web pages, and users can only visit pre-authorised pages. For example, access to Telnet sites is severely restricted, so there is no danger of children tapping into an adult-type bulletin board even if they try to. A customised version of the ANT *Internet Suite* is supplied by CampusWorld to its Acorn customers. Developing this version gave us an insight into many issues facing Internet service providers supplying the education market, and also into the needs of teachers using the Internet. The mantra we must learn is ease of setup, ease of use...



Sending email with Marcel



The various components of the ANT Internet suite


Fresco: Welcome to Fresco™
URL http://www.ant.co.uk/
ANT
Welcome to Fresco™
©ANT Ltd. 1994, 1995.
Fresco™ is a new tool for reading hypertext documents from the World Wide
ANT Limited and is part of the ANT Internet Suite.
Many aspects of Fresco can be configured. The settings for the configuration
Config in the appliaction directory. There is a brief description of the file form
distribution.
Link to http://www.w3.org/hypertext/WWW/WWW/
Fetched from local filing system

Fresco, ANT's World Wide Web browser

Customer service

If you started reading this article to find out exciting secrets about ANT's product development, you might have thought of skipping this section. But feedback from customers is one of the major forces driving product development at ANT, so the customer service team plays a vital role; for example, in specifying new features to be added to the Internet Suite. Dean Murphy, ANT's customer support manager, says that many of our customers have turned to the ANT Internet Suite after having problems with other Internet software, and these 'once-bitten' users seem to appreciate the help we can offer. We're pleased to be able to help, and it's great when we get positive feedback from customers too. But the complexities of all the different combinations of computer, modems, cables, service providers

and users of different levels of experience means that the technical support in-tray is always full and the phone often rings. We've now set up mailing lists so that our users can share their experiences with each other, and maybe help each other out with solutions to problems they share.

It amazes the rest of the ANT team that Dean even has time to breathe, but recently he's also written a new application for managing hot-lists of favourite Internet sites. It works with all the Internet Suite programs, so you can keep all your favourite Web addresses, FTP sites, Telnet sites and so on all in one place and organise them in hierarchical folders, find items in the lists, drag and drop items to rearrange them and, most importantly, access entries with a single click. Customer support also suggests areas where new products can be developed. By listening to our customers in education, we have learned that many schools want to broaden their access to the Internet. They have started by using the ANT Internet Suite on a single computer for dial-in access, and now they want to provide networked access to the Internet throughout the school. The problem with this is that it requires quite complicated servers and software, which in turn require administration and management. All this takes time and costs money, as well as requiring a level of computing expertise that often just isn't available. The solution? The ANT *Internet Server*.

The ANT Internet Server

One of the development teams at ANT, led by David Fell, is working on an Internet Server. The aim of the server is to help schools set up networked access to the Internet with the minimum possible pain, and without needing to have a UNIX guru in permanent residence. The focus is on providing utilities to make the routine tasks of server management less onerous and demanding. The ANT Internet Server is a CD-ROM-based package for servers running Windows NT, such as the Acorn *SchoolServer* and IBM compatibles. It aims to ease the task of setting up and maintaining full Internet access facilities across an institution, simplifying tasks such as setting up user IDs, restricting access, providing security and managing disc space. It includes electronic mail and Usenet news, World Wide Web and FTP gateways for distributing these services within the local network. It also includes router, gateway and firewall software for Internet traffic management and security. To use the Server, schools will need a suitable server computer running Windows NT with two network interfaces and sufficient serial ports for the required number of modems, suitable client software (e.g. ANT Internet Suite on Acorn computers, other Internet software on PC and Apple Macintosh computers), and a direct or dialled connection to Internet service provider.

Internet Suite developments

Work on the Internet Suite always continues. One of the problems with developing for the Internet is that it is very much a moving target. With millions of inventive people all over the world using it every day, you'd expect to see changes in the Internet all the time as people come up with new ways to use it. So the ANT Internet Suite is still under development: *Fresco* and *Marcel* have just been overhauled, the configuration and setup utility has been expanded, and the manual has been rewritten to cope with all the changes. A major new feature is support for demand dialling, so that users can schedule news and email downloads for any time of the day or night. Support for more service providers has also been added: we currently include scripts for service providers in over 30 countries, and for the UK the list of providers grows and grows. The new version also works co-operatively in dial-up mode with other network applications such as Acorn *Access*.

Marcel updates

Marcel, the Suite's mail- and news-reading program, has been redesigned by its author, Nick Smith, to offer more support for several features demanded by customers. On the news-reading side, these include much better support for off-line news-reading and management of downloaded news articles. With this version, subscribing and giving up newsgroups has become much easier, and controlling the expiry of articles is simple: just choose the dates you want for each group via a dialogue box. Mail management has also been improved, with support for multiple addresses at a single site. This is primarily aimed at Demon customers, who use the facility to set up different addresses (such as fred@home.demon.co.uk and alex@home.demon.co.uk) so that family members can have their own mailbox, or to use as a kind of filter for mailing lists which can otherwise swamp your in-box with hundreds of messages.

Fresco

To many people, the World Wide Web *is* the Internet. It certainly has a high profile, and you can see Web pages everywhere, in newspapers and magazines and even on children's television (the BBC's *Live and*

Kicking has been using Fresco to display Web pages). Web browsers are rather like icebergs in that you don't see the greater part of them. All the activity is submerged: as users point and click, surfing the Net from page to page, they encounter all types of documents and graphics which their browser must decode and display. The HTML language which is used in Web pages is itself still being developed and extended, and there are also Netscape's own extensions to the language to deal with too. Developing a Web browser can sometimes feel like pushing rocks uphill. The additional challenge for RISC OS programmers is to produce the same results as commercial browsers on other platforms for users whose computers have less memory and possibly slower processors...

The Fresco team (yes, it's a team now; there's far more than one person could possibly do, so Nicko van Someren now has some help) has added support for tables. These are used by an increasing number of pages to display information in neat columns. You hardly notice them when you do see them on a page, but the browser has to put in a great deal of effort to support every possible permutation of the HTML codes involved. Other recent additions include pointers which change as they pass over various types of link and page features, and the ability to export pages as Draw files for incorporating into other documents. Like everyone else who has used the Web, we're excited by some of the possibilities which are emerging: animations, ShockWave, frames, Java. It's easy to learn all the buzz-words, but adding these features is a major effort, especially for the Acorn platform where you often find yourself having to reinvent everything from the ground up. As always, we hope to do as much as possible, perhaps even to do the impossible!

Our Web site

Our Web site is busier than ever. The statistics software we use shows that traffic doubles every month. We encourage users of the ANT Internet Suite to use the site: you can register your software on-line, read the latest news from ANT, and use the collections of links to access other sites around the world. Registered users can download updates to the Suite: when an update is issued, we mail all registered users and they can collect their update by visiting the page.

A brief history of ANT

Founded in 1993, ANT Ltd is one of the foremost developers in the Acorn market. Prior to 1993, its products were sold through Atomwide, and indeed Atomwide, ANT and Aleph One all share a common heritage and are very closely related, as you'll gather from the staff list below. ANT specialises in networking, connectivity and Internet products, and in addition to the ANT Internet Suite, developed Acorn *OmniClient*, the networking application which allows Acorn computers to run on PC networks, as well as a wide range of Acorn network interfaces. Most recently, ANT's *Fresco* World Wide Web browser has been adopted for use in the new Acorn/Oracle network computers. ANT is working on a new version of Fresco in conjunction with Acorn Network Computers which will incorporate additional technologies and features to enable users of the network computers to connect to the Internet and use the World Wide Web. These new features will also be incorporated into the ANT Internet Suite.

Who's who at ANT?

Alex van Someren: co-founder and owner of ANT Ltd as well as Aleph One. *Nicko van Someren*: co-founder of ANT Ltd and the man behind Fresco. *Martin Coulson*: co-founder of ANT Ltd, co-owner of Atomwide, and the person responsible for ANT's hardware

Alex van Someren - a driving force behind ANT

division. *Carol Atack*: Corporate Communications Manager for ANT Ltd, professional writer responsible for the Internet Suite, OmniClient and PC card documentation among other titles, co-author of *The ARM RISC Chip: A Programmer's Guide*, and married to Alex van Someren. *Nick Smith*: the author of Marcel. *David Fell*: the man behind the Internet Server. *Dean Murphy*: ANT's Customer Support Manager.

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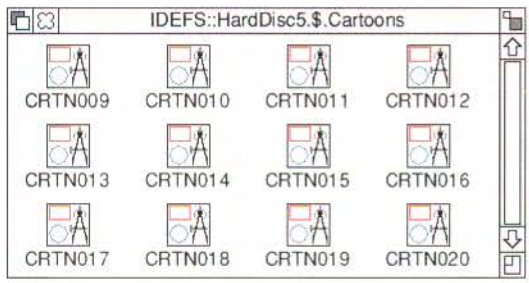
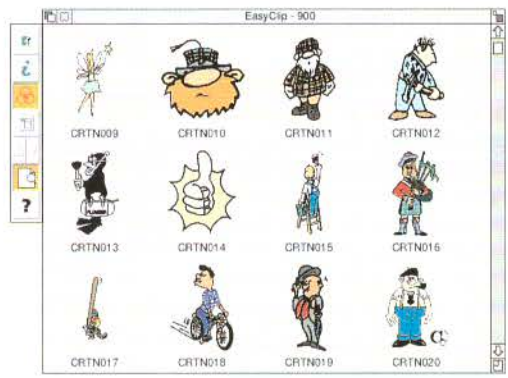


There're 2 ways you could sort it out !



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DTP Workshop

Keith Parker explores the creation and use of rotated text effects

One of the objectives of this column is to address the limitations imposed upon us by omissions in the software we have available. Many of the features which are not currently present in many Acorn packages are taken for granted by users of the so-called 'industry standard' DTP packages such as PageMaker and QuarkXPress. The first of these shortcomings to be addressed is the inability to create rotated text. In the first two articles in this series we looked at seven DTP packages, and found that only two of them supported the creation of rotated text.

Why should we want or need rotated text?

If you look closely at many publications (books, advertisements and magazines, for instance) you will see examples of the use of rotated text. With books, rotated text can be used on the spine to place the name of the book and author in a narrow confined space, whilst in magazines, advertisements or packaging it can be used for eye-catching effect to grab your attention. I have recreated a couple of examples to show what can be achieved: the first clearly shows the author's name and the book title (see figure 1), whilst the second describes a new feature of a product and draws attention to the prices (see figure 2). Rotated text does not necessarily need to be placed in 45- or 90-degree increments, of course; it can be created at any angle, depending upon your document's needs and the images you use. Importantly, though, it should be remembered that rotated text should only be used if it adds 'value' to your document, and should not be placed there merely because you can do it!

Figure 1. Using vertical text for a book spine.

Impression, Ovation and PenDown DTP

As Acorn users we are fortunate to be provided with the means of producing rotated text as a part of RISC OS: *Draw*. You can if you wish use *ArtWorks* instead, and either drop in the ArtWorks file (the Impression range and Ovation can cope with them) or export it as a Draw file.

So let us create a simple example of rotated text. Load Draw in the usual way, open up a window, select the Text (T) tool and type in some text. At this stage it appears in the System font. Select your text by clicking on the Arrow tool, and from the Style menu choose a font (such as Homerton Bold) and a large point size such as 24pt. The result should look something like figure 3.

Figure 2. Using angled text to grab attention in an advert.

Ensuring that the text is still selected, open up the Draw menu and locate the *Transform>Rotate* menu item. Choose an angle, say 45°, click on it or press Return and the text rotates (see figure 4). If you are still using RISC OS 2 (and I strongly suggest that you upgrade to RISC OS 3.1 as soon as possible!) you will need to convert the text to paths before rotating it. Unfortunately, although the RISC OS 3 version of Draw has an option to do this (the *Select>Convert to path* menu item), the earlier version of Draw supplied with RISC OS 2 does not provide

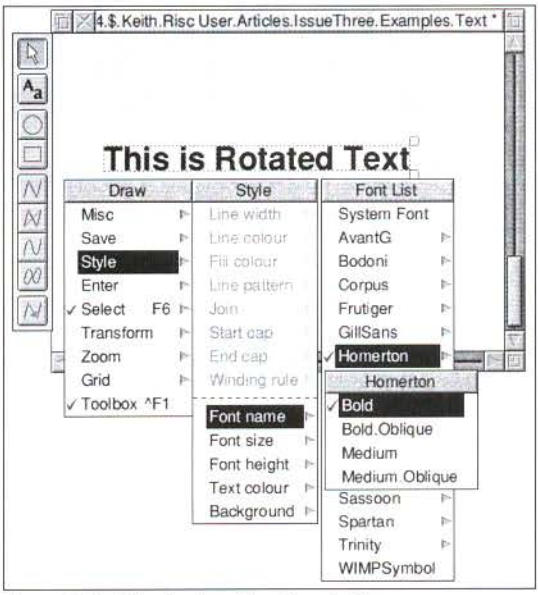


Figure 3. Getting text reading for rotation.

this facility, so you will have to use ArtWorks or one of many public domain and cheap commercial programs which are available for such purposes. One of the big advantages of RISC OS 3.1 and later is that once you have rotated your text it remains editable, so you can still change the style or reword it as necessary. If you have had to convert the text to paths and later find that you need to change the text or its style, unfortunately you will have to start again!

Having arrived at the style and rotation you want, save your Draw file to disc in the usual way, or drop it straight into your DTP package.

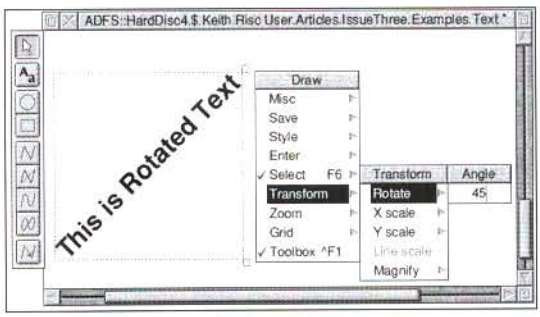


Figure 4. Rotating text in Draw.

By way of illustration I have used Impression Publisher, created a page of text, added a frame and simply dropped in a Draw file (see figure 5). If you were creating a manual for the Impression range, you could be sure that users looking in it for information about rotated text would know they were in the right section instantly! The method is almost exactly the same when creating rotated text in the rest of the Impression range, Ovation and PenDown DTP.

DTP packages with text rotation capabilities

When we looked at the DTP packages in the first two articles, there were two that supported editable rotated text as standard: TextEase 2 and Ovation Pro. In both cases, creating rotated text is simplicity itself! In TextEase 2, all you have to do is type in the text, grab the green handle and move it; and the text rotates. Pressing Control at the same time gives you rotation in 1° increments, allowing you greater control. As Peter Jennings remarked in RISC User 9:3, it is rather unnerving to see text upside down with the caret moving and changing the text (see figure 6)!

In Ovation Pro you first create a frame, type in the text and then, using the rotate tool, select the angle of rotation and it's done. As with TextEase 2, it takes a few moments to get used to editing rotated text, but you will soon appreciate the amount of time it saves (see figure 7).

Figure 5. Using rotated text in Impression.

Using rotated text

The use of rotated text depends a great deal on the document you are creating. In many projects, rotated text will be unnecessary, but in others it will be viewed as a very useful feature. As I said earlier, you should use it only if you believe it will add value to your document; in other words, if it helps you to get your message over more efficiently or clearly without detracting from the essentials of your document. If, however, when you have created your masterpiece,

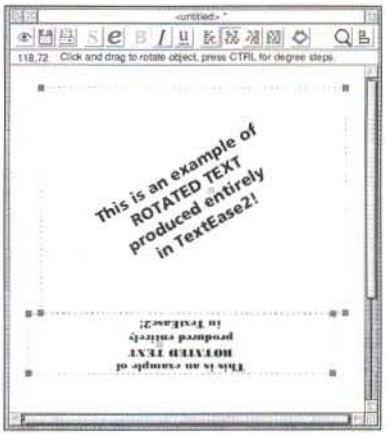


Figure 6. TextEase2 supports rotated text directly...

the end result is that you admire the rotated text rather than reading the message, then it has not achieved its purpose!

I used to work for a major British company which decided to improve its point of sale literature. We briefed two design houses, and their ideas ended up as a discussion of the finer points of the design and not its message! This was definitely a case of over-creation; it cost the company over £10,000! Most of us have finite resources, so if you have friends or family who are willing to be guinea pigs, why not print out a copy, give it to them without telling them about it and ask them for their comments? This might help you save both time and money. Once you become proficient in creating and using rotated text, you will appreciate exactly which projects will benefit and which will not.

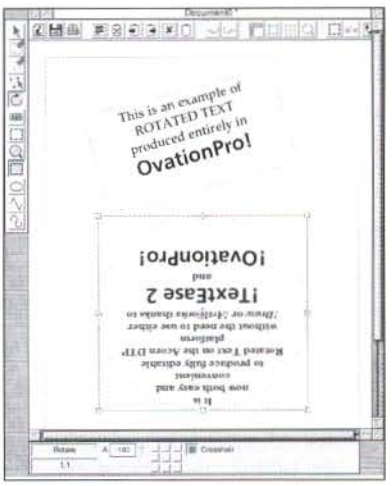


Figure 7. ...as does Ovation Pro.

Examples of rotated text

Finally, in addition to the two earlier examples I have re-created (in Draw) some instances of rotated text taken from various commercial publications that I feel will aid you in firing your imagination and creativity (see figure 8). If you see examples of rotated text that you like, save them; you never know when the idea will be useful. If you think the example is particularly good, and that others might like to see it, send a copy to me and we'll consider including it in a future workshop.

Figure 8. Examples of rotated text taken from real publications.

DTP News

PenDown DTP

The upgrade prices and site licence costs for PenDown DTP have been announced. As stated in the March issue, the single user price is £59 ex. VAT. For registered users of PenDown, PenDown Plus, Talking PenDown and FirstPage, the single user price is reduced by 50%: £29.50 ex. VAT.

Site licenses are priced as follows (all excluding VAT). Single user: £59; 5 users: £67; 10 users: £118; 20 users: £207; 40 users: £354. For registered users of PenDown, PenDown Plus, Talking PenDown and FirstPage, the site licenses are discounted by 50%.

Computer Concepts products

Impression Publisher and ArtWorks are now available without the 'dongle' (hardware key). This should put an end to the difficulties that some users have found with dongles. To upgrade, call Computer Concepts on tel. 01442 351000 (email info@cconcepts.co.uk), and quote your serial number. You must return your dongle and send payment of £12.76 ex. VAT (£15 incl.) for each upgrade. Note that Impression Style never used a dongle, and Publisher Plus still requires it.

Computer Concepts has also reduced the prices of their packages, as follows (all prices excluding VAT): ArtWorks: £99 from £169; Impression Style: £79 from £99; Impression Publisher: £129 from £169; Impression Publisher Plus: £229 from £299. The upgrade from Publisher to Publisher Plus is also reduced: £99 from £130.

Font Directory 2

Alan Wrigley reviews the latest version of LOOKsystems' font management application

The trouble with fonts is that there are just too many of them. Ever since Acorn released its outline font manager, both commercial and PD fonts have proliferated, catching out the authors of early RISC OS applications which had a built-in limit to the number of fonts they could handle on the assumption that no-one was ever likely to have more than a modest number.

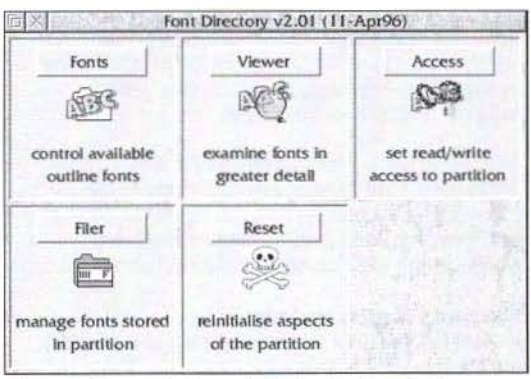


Figure 1. The control panel window for the single user version

Many people now have several hundred fonts on their system, and a new problem has arisen: how do you manage them all? It's inconvenient, not to mention slow, to have every font installed all the time. This would mean enormously long font menus, 90% of which would hardly ever be used. On the other hand, installing and uninstalling fonts as you need them is very fiddly, since you normally have to do it for a whole font directory at a time. And if you just want to see what a font looks like so that you can choose something that's just the right thing for the document you're working on, then you need either a separate application to do the job or at the very least a printout of all your fonts, preferably in all their weights and styles.

To overcome these problems, a couple of years ago LOOKsystems produced its font management application *Font Directory*. This works by storing all your fonts in a partition on your hard disc, and providing a front-end which allows you to install and uninstall fonts at the click of a button. The original version was reviewed in RISC User 7:3, and now version 2 is available, which promises a number of new facilities. In addition, it can now be installed over a network so that fonts can be stored on one machine and made available to others. Later in the review I will report on using the package over the Access+ network that I've just installed in my office.

In order to give you an idea of whether this review is worth reading or not, I will say at the outset that I am very impressed with this application, so if you find your fonts a nuisance at times, read on!

Installation

Setting up Font Directory 2 is fairly straightforward, and is made more so by a comprehensive installation guide with two parallel instruction paths, one

Figure 2. The font list display collapsed to its minimum level

for "the nervous" and the other for "those in the know". If you're of a nervous disposition, you will be pleased to know that installation is described very comprehensively in clear, logical steps!

Once the relevant applications have been installed on your hard disc, the control window opens (figure 1) which allows you to manage FD2's various facilities. To start with, you will need to transfer your fonts to FD2's partition; clicking on the appropriate icon in the control window loads a separate application to manage the partition. Installing fonts is simply a matter of dragging them into the partition, having first created directories of your own choosing to hold them. For example, I created directories called *Regular*, *RISCUser* and *ArtWorks*, and placed all my regularly used fonts in the first one, and various RISC User and ArtWorks fonts in the others. I could just as easily have chosen *BodyText*,

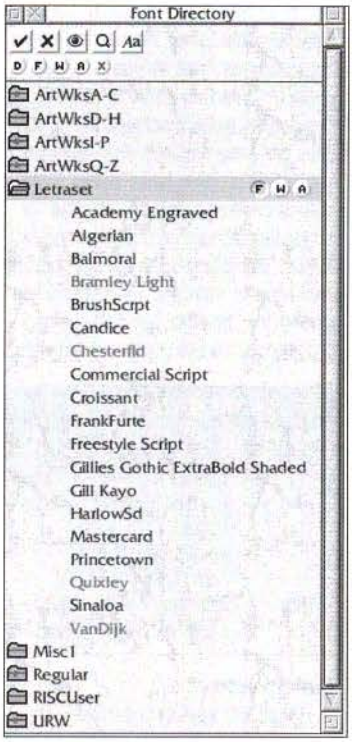


Figure 3. Semi-expanded display showing font family names

Headings, *FancyFonts* or any other categories. In other words, you can arrange the fonts in folders to suit your own working practices. This will be useful later on, as you can if you wish install or uninstall complete folders with one click.

Other facilities available from the control panel include access to the main FD2 program which manages the use of the fonts. In normal usage a font manager system needs to be completely transparent and automatic, since fonts need to be available at all times (especially on machines which use a desktop outline font). Obviously you don't want to run the control panel each time the computer starts up before you can use any fonts, so once the installation is complete you would then run FD2 from your boot sequence. An icon appears on the icon bar, via which you can then manage the use of fonts while you work.

Managing fonts

The font management application is the real heart of FD2, and is a very powerful and flexible tool indeed. Opening the main window shows a list of fonts available in the partition, but the way this list is displayed can be altered in numerous ways to suit your current requirements. At its simplest you can show just a list of the folders you have created (figure 2). If any of these contain active fonts this is indicated by a little red dot. Clicking on the folder icon opens the folder so that you can see all the font families in that folder, with active ones shown in red (figure 3). Double-clicking on any font installs it and makes it active, while double-clicking on the folder name makes all its fonts active. You can also make a selection of fonts or folders or both, using the normal conventions of dragging out a block, or Adjust-clicking to add to a selection. This all makes the process of font installation an extremely simple and painless affair.

Further options are available via icons in the window. You can choose WYSIWYG display, which shows each font in its own style (figure 4); and you can expand the display of each font family still further by showing the various weights and styles available. All these options work instantly and intuitively, giving you absolute control over your fonts. The WYSIWYG display is particularly well implemented. The data is cached at the time the font partition is set up so that the fonts don't have to be drawn each time you choose the option. This means that the WYSIWYG display is instantaneous, making it very easy to switch it on when you want to check what your fonts look like, while leaving it off for normal use.

FD2 includes a separate application, *FontView*, which provides a comprehensive font viewer. This allows you to see the effect of any font currently available, on either the standard "Quick Brown Fox" text plus the alphabet, or on a piece of text of your own choosing. For example, you can drag in a selection of text from the application you are working with to see what it looks like in various fonts and sizes. You can even change the justification and the colours, and also view the character maps for any font. You can have multiple windows open at the same time allowing you to compare various fonts side by side (figure 5).

Figure 4. Font list in WYSIWYG format

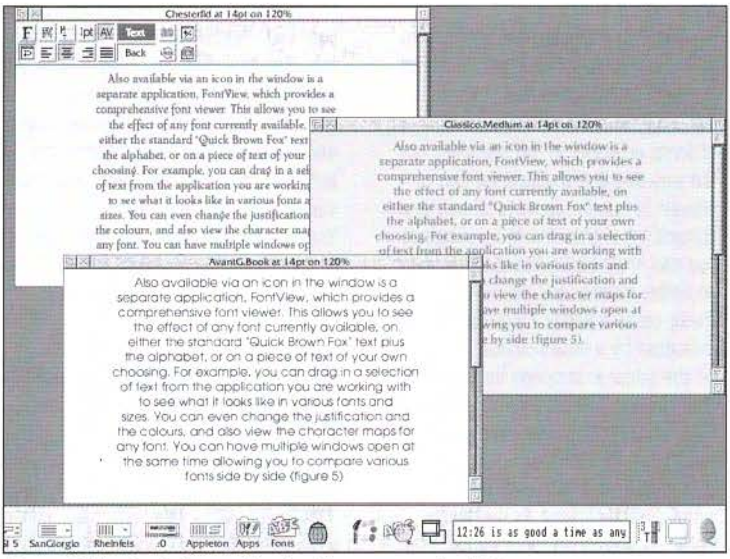

Chesterfld at 14pt on 120%
Text
Back
Also available via an icon in the window is a separate application, FontView, which provides a comprehensive font viewer. This allows you to see the effect of any font currently available, on either the standard "Quick Brown Fox" text plus the alphabet, or on a piece of text of your own choosing. For example, you can drag in a selection of text from the application you are working with to see what it looks like in various fonts and sizes. You can even change the justification and the colours, and also view the character maps for any font. You can have multiple windows open at the same time allowing you to compare various fonts side by side (figure 5).
ClassicoMedium at 14pt on 120%
AvantG.Book at 14pt on 120%
SanGiorgio
Rheinfels
.0
Appleton
Apps
Fonts
12:26 is as good a time as any

Figure 5. The font viewer showing three separate windows

FontView can be run separately from Font Directory, or it can be activated by an icon in the directory display window. While the icon is switched on, clicking on any font name changes the font in the FontView window instantly. This means that you can set up a piece of text in FontView and view it in different fonts by clicking in the list alongside. The font doesn't even have to be active in order to do this. This must be the simplest and easiest way that I have ever come across to determine what any particular font will look like.

Document scanning and security

An important feature of FD2 is document scanning. This means that it can scan a document to determine which fonts it uses, and install them automatically if they are not already available. This is normally done by holding down the Alt key while double-clicking on the file to run it, but you can also configure FD2 to scan specified filetypes whenever they are run, irrespective of the Alt key. This is very useful with the network version (see below), enabling pupils for example to run their work files from any station on the network without having to worry about whether the correct fonts are installed on their machine.

Another aspect of FD2 which has had some thought applied to it is security, and again this is very important when running over a network. The font partition can be locked to prevent tampering, and furthermore you can protect it with a password. This should prevent all but the most determined hackers from upsetting your fonts.

Networking fonts

The network version of Font Directory 2 works in a slightly different way from the single user version. The control panel now only allows you to run the font manager and the font viewer, and not the partition or security control applications. This is a logical thing to do, since these facilities would normally be under the control of the network manager. Separate applications are now provided to perform these operations, and these can be kept elsewhere out of sight of normal users.

Apart from this, the application is installed in the same way as before, and once this is done then any station can run the font manager locally across the network and gain access to the fonts stored on the master machine. This has great benefits, since stations without a hard disc now have access to a wide range of fonts that would otherwise be impractical, while machines with a hard drive can save precious disc space by not having to store fonts locally. Each station can set up its own start-up configuration, so that a different set of fonts is available as the default on each machine, for example. This makes the system very flexible. The defaults and preferences can be password protected.

Font Directory 2

Supplier	LOOKsystems Unit 1, The Gables Yard Pulham Market Norfolk IP21 4SY Tel. 01379 608585 Fax 01379 608575
Price	£45 inc. VAT (single user) £150 ex. VAT (unlimited network)

Conclusions

Of all the applications I've reviewed for RISC User over the last 6 years, only a couple have proved so invaluable that I would be lost without them (David Pilling's *ArcFax* and Quantum Software's *Blinds*). Font Directory 2 will now definitely join this elite band. It has clearly been written by someone who understands exactly what users want - usability - and is a great testament to the strengths of the Acorn platform. Every aspect of the program shows signs of careful thought, and I don't think I can fault it in any way. It is fast, compact (the basic application only requires 76K), and appears to be completely stable. If you've ever cursed the complications of using a wide range of fonts on your Acorn, then you will never look back if you buy Font Directory 2.

If even £45 is too much for you, then LOOKsystems will be releasing a cut-down version in a couple of months for £25. This will have a simpler font viewer and no WYSIWYG display, but otherwise will have all the important features of the full product.

Sense and Sensibility

Chris Drage explores the world of data logging

This month and next I want to explore what is perhaps one of the least well understood aspects of computer use in school: automatic environmental data collecting and data logging. In this article I am going to assume little prior knowledge, and must apologise to those techy IT co-ordinators who are on top of the situation.

The National IT Curriculum specifically mentions sensing physical data, recording and interrogating it. At Key Stage 2 (ages 7-11), the emphasis is on collecting and recording data, monitoring physical events and conditions, and processing, presenting and responding to the collected data. This is taken a step further at Key Stage 3 (ages 11-14), where the stress is placed on using an increasing range of methods for collecting data for computer processing, including many in which data is collected automatically. At Level 4 (Key Stage 2), for example:

"Pupils use IT systems ... to sense physical data and to display it"

"They add to, amend and interrogate information that has been stored"

"They compare their use of IT with other methods"

By Level 6 (Key Stage 3):

"They understand how IT devices can be used to monitor and measure external events using sensors"

and Level 7:

"They use IT equipment and software to measure and record physical variables"

Remember, too, that data handling is also an important aspect of National Curriculum Mathematics, where data logging activities can find relevance in number, algebra and data handling at a number of levels.

I suspect that subject specialists in secondary schools will be familiar with data logging and sensing in science generally, whereas the non-specialist primary teacher who is expected to be master of all trades is commonly, in my experience, all at sea when it comes to control technology and data logging. Thus I want to address primary teachers who, in terms of the National Curriculum, must provide opportunities for their charges to log data, display it and interrogate it in some way.

Sensors used in control

Most people are familiar with a radio-controlled car in which movements of a steering wheel and the depression of an accelerator button on the control handset cause the car to move forwards or backwards and steer to the right or the left. The sophistication of such a device is relatively low, since the processing power comes from the human brain in charge of the vehicle. The human's eyes respond if the car is seen to be heading towards a wall and the brain says "move the car away from the wall". Appropriate action by hand and finger movements effect that result. If a collision with an object occurs, the eyes, ears and brain combine to provide an appropriate solution by causing the car to back away and steer to the left or right in order to avoid it. Computer control has exactly the same effect to a greater or lesser extent, in that the same sequence of *Event*, *Decision*, *Action* takes place time and again through the processing system of the machine (see figure 1).

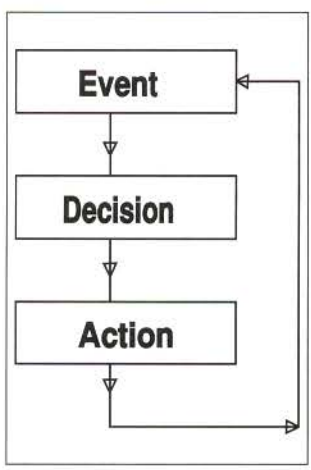


Figure 1

It is processing *loops* which are fundamental to the understanding of a computer-controlled system. The difference from the human brain control system is that the sensors are mechanical (or electromechanical) rather than fingers, ears and eyes. The processing unit is a piece of computer software which directs the devices to act in response to the information received from the sensors.

Human control
Sensors: eyes, ears, nose, taste, touch
Processor: brain

Computer control
Sensors: light sensor, temperature probe, sound sensor
Processor: computer plus appropriate software

Let's look at a simple working model of a familiar control system you experience when you enter many shops nowadays: automatic opening doors. In order for the doors to work, a simple sensing and control loop has been defined which works like this:

Automatic door system

1. Normal state: door closed
2. An infra-red sensor detects movement or heat
3. Signal to computer
4. Computer receives signal
5. Computer activates door mechanism and initiates:
6. Wait loop for 5 seconds: WAIT
7. If sensor activated: remain OPEN
8. Otherwise: CLOSE door (return to step 1 again)

The controlling program is made up of signals received from the sensor and other signals sent to the door mechanism. A little *intelligence* is programmed in to prevent the door from closing and squashing a child who might be following! The signals coming from the sensor and into the controller (computer) are called *inputs*, and the signals going from the controller are *outputs*, usually in the form of power to the devices being controlled. In most control applications, this input/output sequence through use of a loop is called *feedback*. These same principles apply to almost every computer-controlled device. The sensors to which the control system is responding can be either digital or analogue.

Digital sensors can only respond as being either *on* or *off*; thus, if there is light falling on a digital light sensor, it will respond as being *on*, but should it be dark then it will respond as being *off*. In the above example of an automatic door, the infra-red sensor would be of a digital type. Digital sensors cannot measure how much light, temperature etc. there is, and as such are very imprecise devices; thus they are cheap, too! Analogue sensors measure variable amounts of temperature, light, humidity, pressure etc., and are therefore most useful for taking measurements in science experiments. The accuracy of analogue sensors can be variable, but in general the more you pay, the better the quality.

Data logging

Data logging is the automatic recording of information at timed intervals. The emphasis is on environmental data obtained from both inside and outside the classroom. A data logger is an instrument which can take readings from a number of sensors and store them in its own memory. Some data loggers for schools operate independently, but must eventually transfer collected data to a host computer where it can be stored and displayed for analysis. Where computer control might, for example, use the response from a sensor in order to switch a device on or off, data logging is concerned with using a sensor to record and measure environmental phenomena. The number of sensors available in both digital (e.g. on/off switches) and analogue (e.g. thermistor) types is increasing in number, permitting monitoring and measuring in the chemical, physical and biological sciences. Digital sensors provide a vehicle for counting events whilst analogue sensors detect subtle changes in the environment.

Although you may not realise it, you are already familiar with the concept of data logging when you see blood pressure/pulse traces on a screen in your favourite TV hospital soap, or on computers displaying graphs of data from some device being discussed in Tomorrow's World, etc.

Data logging requires three main components: a set of analogue sensors, an interface, and suitable software. Sensors on their own cannot be plugged into a computer; thus an interface is needed. Most interfaces have sockets for three or four sensors and can convert the signals received from the sensors into data which the computer can use. You will see that some control interfaces also have sockets for analogue sensors included so that control and monitoring are contained in one box. Other interfaces have their own memory and battery power, and can record data without being attached to a computer. These are referred to as *data loggers*. Independent data loggers have their own inbuilt software, but still require other software to be running in the host computer in order to download the data to it. It may be stating the obvious, but should the data logger not be sold with any linking software, you need to ensure that the software you purchase is compatible with the hardware. *Insight* and *Junior Insight* (Longman Logotron) and *PriSM-2000* (Educational Electronics) are three very good titles which can be used with most data loggers. Unfortunately, sensors, too, are pretty well specific to each data logger. Don't expect sensors from one logger to work with another make. For primary schools, probably two sensors are all that are required: temperature and light; and these two are commonly offered with a data logger. In fact, I would advise at least two temperature sensors as a minimum requirement, as there are many opportunities in science when you might want to compare the temperature of two or more elements. Other sensors which will find a use in primary science are pulse, sound, pressure and position sensors.

Next month I will examine a range of equipment to get you on your way with primary data logging.

For further information

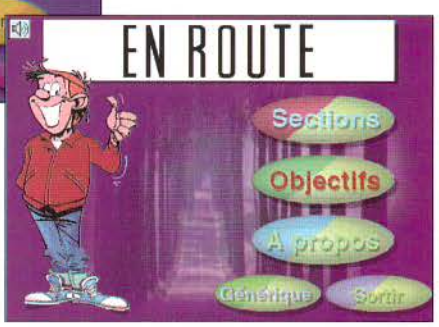
NCET information sheets:
Data Logging (Choosing and Using IT Equipment)
Data Logging Software (Science Information Sheet)

Supplier NCET
Milburn Hill Road
Science Park
Coventry CV4 7JJ

Long on Languages

Mark Sealey surveys the pick of resources for work at Key Stages 3 and 4 in Modern Foreign Languages

Modern Foreign Languages (MFL) is one of the areas of the National Curriculum that has undergone least change and about which there has been least controversy. It has four Attainment Targets: *Listening and Responding*, *Speaking*, *Reading and Responding* and *Writing*. As with pupils' first language, it is important to realise that these processes are inter-related and to bear in mind that the software which acknowledges this is likely to be the best.



The usual common requirements also apply, including provision for those users who need means of communication other than speech. So check to see how your students may use overlay keyboards, touch-screens and the like in their work. Make a point of familiarizing yourself with talking software, and peripherals such as light pens and roller/tracker-balls (e.g. those produced by SEMERC) which facilitate input for pupils with certain special needs.

Remember, too, the requirement that pupils should be able to use core IT skills throughout their work in MFLs. This, not surprisingly, may involve the use of standard word processing and desktop publishing software, so approach your IT coordinator and have them take you through what the school uses (*Impression Publisher*, *PenDown* and the like). Icon Technology's *EasiWriter* has versions in many languages with comprehensive spelling checkers, dictionaries and accented characters: you cannot afford to be without these, really.

There is a whole host of activities that can be carried out just as easily in French or Spanish, say, as in English:

* The compilation of crosswords and word searches
* Collaborative stories
* Quizzes
* Games adapted from TV. Try adapting favourites like Countdown and Family Fortunes, and playing them in class but in a 'localised' format. They will have more impact if the subjects chosen are particular to the students you teach.

There is much to be said for pupils carrying out in one (or more) of the languages being studied just those activities that they might otherwise do in English. More able students might like to try working to program an adventure game, for instance, using *ALPS* (the scripting kit and system) from Alpine.

These more open-ended activities may be used to supplement what you might think of as more directly 'targeted' software, but will work (if approached in the right spirit) because they can be made to be fun and are usually more motivational.

They will also be an elegant and economic solution where your school cannot afford dedicated MFL software; although there really isn't too much yet available for the Acorn platform anyway, so you should not be overwhelmed. Try to ensure that the school has a variety of clip-art and similar DTP resources to accompany such open-ended work. RJH does a couple of discs of French clip-art, for example, and 4Mation has *smArt* files in various languages. SEMERC

produces four European versions of *My World*, which should be investigated here.

So what are the front-runners in software to enhance students' work in MFL? Let's look language by language.

There is much more material available for use in French than any of the other languages commonly studied in UK schools (German, Spanish and Italian); and next to nothing is available for any other languages, other than Emerald Publishing's *Hanzi*, a Chinese text editor.

French

Oak publishes *CD Français*, which was reviewed in RISC User 7:8. This kind of interactive multimedia product, with lots of activities for students inside the environment (in this case, French daily life), is to be preferred over the less imaginative drill-and-practice dross that may tempt the unwary. ILP has *Directions 2000* and *En Route* as well as *Toute Direction - Progiciel Interactif*, all of which claim to cover a large amount of ground.

Château and *Courrier* from AVP are games for vocabulary work at the upper end of the age range, while *Dans le Metro* is a practical simulation from Languages Development Centre to help with familiarity in using the Paris underground, of which it contains a complete plan. In a similar vein are *Granville* from Hampshire MicroTechnology Centre and *Voyage* from L'Ensouleiado.

On the reference side, Fabis has *Lexique*, which is remarkably good value for money, and SEMERC has *Route Nationale* in support of the Nelson scheme of the same name.

German

Vision Software has a German course as such in two parts, looking at *Time, Shopping and Travel* (Unit 1) and *Accommodation* and *Meeting and Greeting People* (Unit 2). SEMERC's *My World* turns up as *Meine Welt*, whilst Longman Logotron has dedicated German datafiles for the excellent *PinPoint*.

Superior Software has produced a German module for use with its *Speech* system.

Likely to become the market leader in the mould of *¡En Marcha!* and *CD Français* is ILP's *Unterwegs* multimedia CD, released in April and claiming to be as comprehensive as those other titles.

Spanish

ILP leads with *¡En Marcha!*, another multimedia compendium on CD. *My World* this time is *Mi Mundo*; and *Numero 62* (also available in French and German) from RESOURCE, if approached sensitively, has many uses.

A similar set of resources is available for Italian, although there is no single outstanding product of the calibre of *¡En Marcha!*.

General

Primrose has several titles designed to produce ready-made business and pen friend-type letters (including Chinese) from an existing database under the series name *Tick-Tack*. Similarly practical, and of use to travellers to the four main European countries whose languages are studied here, is Languages Development Centre's *Hotel Excelsior*.

If you believe in drill-and-practice and can justify its use in appropriate cases, then try Minerva's *Linkword* series for French, German and Spanish, though be aware that it relies unashamedly on using memory, something which not all students will be good at.

Other resources

There are various CDs available containing European newspapers; these will have to run under PC emulation, however, or be accessed from the World Wide Web (see below), as nothing 'native' exists yet.

There is more and more material appearing on the Internet, including many newsgroups in the *soc.culture* hierarchy and, of course, the option to exchange electronic mail with children from other countries. This is probably the best method of all, for it will be the liveliest and most real written language that you can find. For comprehensive information on which schools are connected, go to:

```
http://web66.coled.umn.edu/schools.html
```

Campus World will help you find a French 'key pal'. If your school has a Net connection, it can try other World Wide Web sites full of information on the countries whose languages are being studied:

```
http://www.dcs.warwick.ac.uk/bear/language-page.html
```

and

```
http://sol.ultralab.anglia.ac.uk/pages/schools_online/languages/
```

whilst newspapers can be found at:

```
http://www.lemonde.fr/
http://www.welt.de/
http://www.larevista.elmundo.es/
http://www.lastampa.it/
```

So, despite a somewhat slimmer batch of products for this area of the curriculum than usual, there is much to be recommended. Not to be forgotten, either, is that most written activities which you already do in the classroom can, with a bit of thought, be adapted quite easily to work in other languages.

Sources and contacts

Alpine
Tel./Fax 01762 342510

AVP
Tel. 01291 625439
Fax 01291 629671

L'Ensouleiado
Tel. 016973 42224

Fabis
Tel. 01283 552761

Hampshire MicroTechnology Centre
Tel. 01705 378266
Fax 01705 379443

Icon Technology
Tel. 0116 2546225
Fax 0116 2470706

ILP
Tel. 0113 243 8283
Fax 0113 243 4884

Languages Development Centre
Tel. 01524 32423
Fax: 01524 68943

Longman Logotron
Tel. 01223 425558
Fax 01223 425349

Minerva
Tel. 01392 437756
Fax 01392 421762

Oak
Tel. 0113 232 6992
Fax 0113 232 6993

Primrose
Tel. 01284 811185

RJH Enterprises
Tel. 01756 794910

SEMERC
Tel. 0161 627 4469

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Serious Statistical Software
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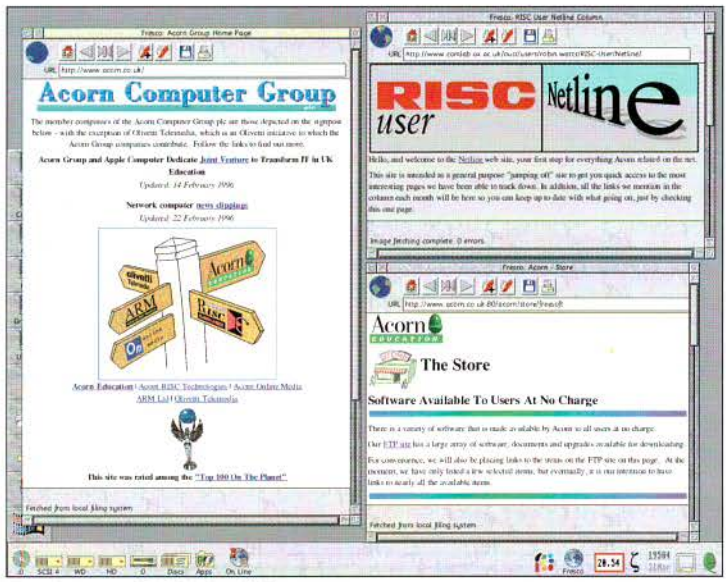
Watts On The Net?

Robin Watts guides you to Acorn resources on the Internet



The Acorn and RISC User Web pages

Over the past year, the Internet seems to have surpassed even the royal family and political sex scandals in getting countless column inches in the national press. The so-called Information Superhighway is being touted as the answer to innumerable problems we never even knew existed, and promises to become as essential a part of our daily lives as the television set is now.

The amount of information already available across the World Wide Web is already huge, and as companies such as Oracle and Online Media push set-top boxes into the home, the Net can only continue to grow.

In this article, we are going to give a quick tour of places on the Net of special interest for Acorn users.

The World Wide Web

By far the simplest way to access the Internet is via the World Wide Web. This, more than anything else, has opened up the Net to everyone, and caused the sudden media interest. Increasingly, every technologically-minded company feels the need for a Web page, and Acorn dealers and developers are no exception.

The first stop for anyone surfing the net should probably be Acorn's own pages at:

`http://www.acorn.co.uk/`

These give full details of all Acorn's computer range to date, screenshots of some machines in development, and various goodies to download. If you are a Clan member, then there is also a special *Private* section which contains sneak previews and special offers.

Updates of the applications supplied with your computer can often be found on Acorn's FTP site:

`ftp.acorn.co.uk`

However, navigating through the directories can be tricky for beginners, so Acorn has put links to the important stuff in the FTP area in the *Store* section of their Web site. It's well worth checking this area to keep your system software up to date. Similarly, if you have a PC card, keep an eye on:

`http://www.ant.co.uk/~aleph1/`

for updates to the PC card software offering improved performance and screen handling.

Interestingly, in recent months Acorn has been keeping news clippings on their site, carrying information about forthcoming products like the Oracle Netsurfer box, and explaining what the different roles of the new divisions within Acorn are. The Web pages are constantly updated, with news of the recent reorganisations within Acorn appearing on the Web at the same time as the press was briefed about them. For the regular surfer, its probably worth popping in here every couple of days to check the *Town Square* (the *What's New?*) page.

While the Acorn site is good for hard news and press releases, another site well worth checking out is the Acorn Cybervillage at:

`http://www.cybervillage.co.uk/acorn/`

Run by Quantum Software and Rheingold Enterprises, this site is making a bid to be the central Acorn site on the Web; dealers and developers can buy space on the server to advertise their products and services, and links are springing up to many other Acorn resources on the Web. The News page is also particularly good; pulling together

stories from the newsgroups, press releases from various companies and rumours of new products, it is always worth a read.

While the Cybervillage is primarily a commercial site, making its money out of selling Web space to advertisers, it has also generously donated a section to the *Digital Databank*. This section provides a wealth of information ranging from company contact addresses and links to their web pages, to a forum for asking questions on specific subjects to experts in the field.

If you only get to check one site on the Web regularly, the Cybervillage is probably a good choice.

FTP sites

Before the World Wide Web came to prominence the biggest and most popular way of sharing files around the Internet was by File Transfer Protocol, or FTP for short. It was so popular that it was rolled into the design of the World Wide Web as one of the transport mechanisms. Even now, it remains the standard way of releasing software to the world at large via the Internet.

There are several archives of Acorn software around the Net which are accessible by FTP. These *FTP sites* can be accessed by anyone with the right software, and give access to a world of public domain, freeware and shareware software that is frequently as good as the commercial alternatives.

The biggest such respository is the Higher Education National Software Archive (HENSA) at Lancaster University:

`micros.hensa.ac.uk`

in the

`/systems/arch/`

directory. This site is officially maintained for the use of academic sites, and so has a policy that sites not ending in `.ac.uk` cannot connect until after 6pm each day. For most users on dial-up links this is not an issue, as few people actually dial in before the evening cheap rate starts.

For those people who find this a problem, or for whom this site gives slow transfer rates, there are various *mirror* sites around the world. The first,

`ftp.demon.co.uk`

maintained by Demon Internet, is obviously intended as a service for its users, but it will serve files to anyone who asks for them. While HENSA, intended supposedly to support research, doesn't include games or demos on its site, the Demon archive has a secondary collection of these.

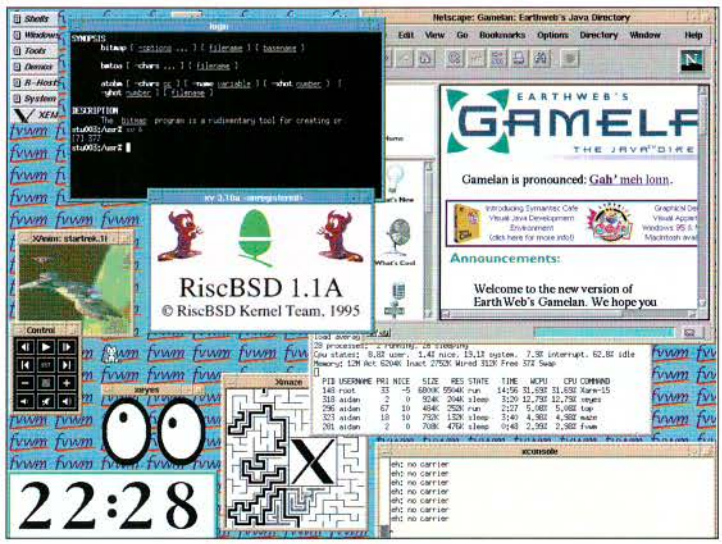
The second mirror site, again an academic one (but without the access restrictions), is:

`src.doc.ic.ac.uk`

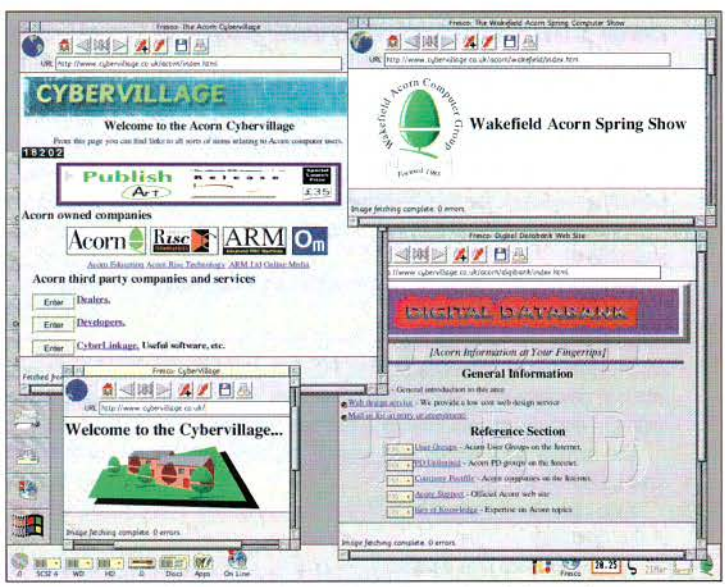
in the

`/computing/systems/archimedes/collections`

directory. As well as the HENSA mirror, it also keeps a full copy of the Archimedes software held on:



RiscBSD is a Unix system for Risc PCs at ftp.ph.kcl.ac.uk



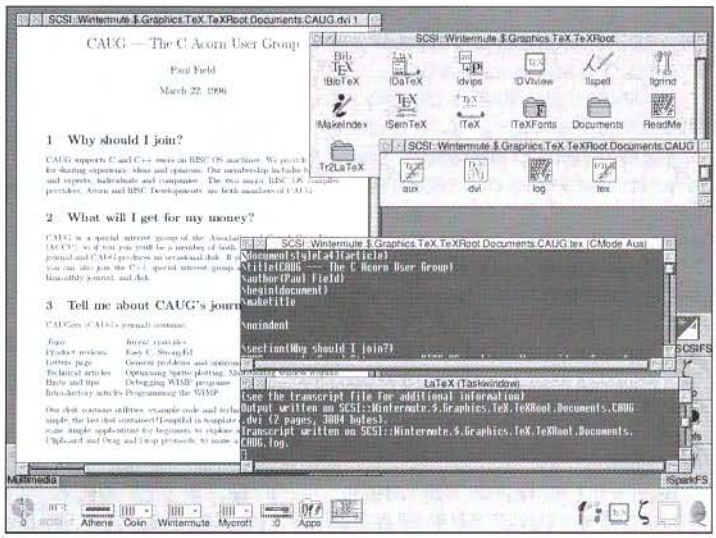
The Acorn Cybervillage contains all kinds of up-to-date information

ftp.uni-stuttgart.de
in the directory
/pub/acorn
This again includes games and demos, and complements the range of utilities available at HENSA nicely.

For people with Pocket Books, the same server contains a selection of Psion software which will run perfectly well on Acorn Pocket Books in
/packages/psion/icdoc/

Smaller sites

These mainstream sites do not by any means constitute all the interesting software on the Internet. By and large, the software released to HENSA and similar archives is in a finished (or nearly finished) state. For new software that is still in development, it is worth watching some of the smaller sites.



TeXshot resources available from ftp.comlab.ox.ac.uk

While the idea of using unfinished software may seem strange at first, the opportunities are there for people to test forthcoming software and mould its final shape with their comments. Even if you are not a programmer (some might say, especially if you are not a programmer), there are many ways that you can improve the software available for RISC OS by beta-testing new software and providing feedback for the developers.

A classic example of this is the *ReMIDI* software, available at:

http://www.stack.urc.tue.nl/~michaeld/remidi.html

This software allows MIDI files to be played back through an unexpanded Archimedes or Risc PC. It is still very much in development, and so feedback from users of all levels of experience will influence the final product.

The more technically-minded among you may find the *Risc BSD* FTP site at:

ftp.ph.kcl.ac.uk
in the directory
/pub/acorn/RiscBSD/
to be interesting. This contains a version of *NetBSD* to run on Risc PCs (but not Archimedes). NetBSD is a version of the Unix operating system that has been around since the early 1970s, and has developed into one of the most popular operating systems ever. More information on the ongoing project can be found on their Web pages at:

http://www.ph.kcl.ac.uk/~amb/riscbsd.html

I was intending to put a section in here praising the *Replay* movie file archive at:

mortimer.cc.ic.ac.uk

but shortly before going to press, the mortimer archive was withdrawn. The site organisers are currently searching for a new home for the archive, and so by the time this magazine drops onto your doormat, it may well have a new lease of life. If you connect to mortimer, there will almost certainly be a message about any new home in the **/pub** directory.

If you are using public domain Net tools to connect to the Web, it's well worth keeping an eye on:

http://delenn.ecs.soton.ac.uk/

This site is actually running on a Risc PC using software written by the site's maintainer, Stewart Brodie, and carries the latest version of his *ArcWeb* Web browser.

Finally, there is my own personal site at:

ftp.comlab.ox.ac.uk
in the directory
/tmp/Robin.Watts
with a full distribution of the *TeX* and *LaTeX* typesetting systems. While this distribution is periodically mirrored at HENSA, the files at my personal site may be more up to date than the ones at HENSA, and testers for them are always welcome.

The addresses of small sites such as these tend to be passed around in news, or by email between friends. If you have a site that needs publicising, let Netline know, and we can arrange to add a link to it on our Web pages to get you a wider audience.

Bulletin Boards and the Internet

Traditionally, Bulletin Boards (BBSs) have been dial-up services separate from the Internet itself, many of which have offered Internet email gateways for people who are not prepared to pay a service provider's fee when all they want is email access.

Similar Bulletin Boards exist on the Internet itself, and one with a thriving Acorn community is *Monochrome*, or *Mono* for short. Originally written while the author was at the City of London University, Mono moved with him when he got a full-time job as a system administrator, but has stayed open to all. To try it out, first *telnet* to `mono.org`. This will give a list of machines available for use. Choose the one with the lowest figure in the *Load* column, and *telnet* to that. Log in as *mono* to start the system.

When you first log in you will not have an account of your own, so identify yourself as *guest*. This allows you to wander around the system freely, but you will only be able to read the discussions in the forums, not actually participate in them. If you like what you see, then follow the instructions given to get a fully-fledged account; there is no charge. The Acorn section can be found by pressing `DAA` at the main menu.

The biggest off-Internet Acorn BBS, *Arcade*, is currently experimenting with extending its services to the Internet too. At certain times of the week, the Arcade computer will dial up its service provider and hook into the Net. While connected, anyone in the world can look around the Bulletin Board with a Web browser, or access any of the software it keeps on-line via FTP.

The savings which result from being able to access the BBS with just a call to your service provider at (presumably) local rates must be weighed against the much better file transfer speed that can be had by connecting to the BBS directly, but for the many Acorn users outside the UK, this may be a very useful feature.

The Arcade system is currently on-line between midday and 5pm on Saturdays and Sundays but, depending on how the system is received, these times may change. For more information, check out:

`http://www.cybervillage.co.uk/acorn/arcade/`

These pages give a brief introduction to the service, and can be relied upon to give up-to-date times when the system will be available.

The Antipodean Acorn users are not to be left out either, as their most popular BBS, *ARMature II*, is also getting the Internet treatment. Anyone can connect to:

`http://www.armature.net.ac/info.html`

but only registered users will be allowed to download software. This isn't much of a problem as registration is free, and the only purpose of registering is so that the system operators can keep track of who is using their server.

I can't say much more about this service yet, as at the time of writing the Internet front-end is still under development; and, dedicated as I am, phoning Australia to browse a Bulletin Board is out of the question!

Accessing Bulletin Boards or browsing the Web, of course, requires you to be on-line and running up a phone bill. This fact is compounded when you realise that most of the time you spend connected to BBS, your modem is inactive, as it runs at a much greater speed than the user does. Many long-time users of the Net find it a good policy to try and limit the time spent on such on-line services to the time it takes their mail and news to download in the background. This means that while they browse, the modem is never left with nothing to do, so they use little more time (and phone bill) than they would otherwise.

Net searchers

However many sites we list here for you to look at, there is bound to come a time when you'll want to find a piece of information that doesn't appear to be listed anywhere. Fortunately, there are ways of hunting sites down: by using a *Net searcher*.

These Searchers are large machines (or groups of machines) with a fast Internet link. They continually scour the Web looking for new pages, and they remember what information is stored where. Thus, if you want to find out where you can get source code for, say, a *Raytracer*, you can connect to one of these search engines, type in `Raytracer`, and the machine will give you a list of possible places to look, ordered on how well the pages matched.

The best searcher I've found is:

`http://www.altavista.digital.com/`

in the States. Typically this returns thousands of matches for each term, but you will only ever want to look at the first 30 or 40 at most. Because of its geographical location, transfer times can be slower than to a British searcher, such as:

`http://www.god.co.uk/`

but I have found the results obtained to be significantly better.

Now, the Searchers may be big and fast, but they are not very smart. In general, you should be as specific as possible in the search terms you give to the searchers to avoid spurious matches. For instance, a search for `RISC PC` produces around 50,000 matches, most of which have to do with the RISC *Power PC* chip. Searching for `Acorn Risc PC` cuts the matches down by a factor of about 5, and eliminates almost all of the spurious ones near the top of the list.

Links to all of the Web pages, FTP sites and newsgroups listed above can be found on the RISC User Web pages at:

`http://www.pobox.com/~Netline`

along with many more we don't have space to mention here. If you know of any resources that should be mentioned which we've missed, then please let us know by dropping us an email at:

`netline@pobox.com`

RISC user

Packed with useful applications, the disc costs just £4.75 inc.VAT.
Please add £1 p&p.

CDAudio

by Mike Fowler

CDAudio is an application which enables you to control and play audio CDs using your CD-ROM drive. It will display the CD title and track titles automatically for any CD that it recognises, and it can hold the details of over 300 CDs.

Audio CD Player
TRACK 19
MINS 00
SECS 10
In The Mix '96
74:32
I Imagine - Mary Kiani
05:31
Continue
Program
Single
Repeat
Random
01 Every Little Step - Bobby Brown 03:39
02 Boombastic - Shaggy 03:26
03 Hideaway - De'Lacy 03:32
04 Renegade Master - Wildchild 04:52
05 Got Myself Together - The Bucketheads 05:10
06 I Know The Load - The Tabernacle 03:54
07 I Believe - Happy Clappers 04:29
08 Your Love - Inner City 04:13
09 The Naughty North & The Sexy South - E-Motion 03:52
10 And I'm Telling You I'm Not Goinig - Donna Giles 03:31
11 La Luna - The Ethics 03:30
12 Sunshine After The Rain - Berri 03:33
13 Little Britain - Dreadzone 03:00
14 Common People - Pulp 04:43
15 Fee Fi Fo Fum - Candy Girls 03:13
16 Runaway - E'voke 03:37
17 Mr. Friday Night - Lisa Moorish 03:11
18 Sex on the Streets - Pizzaman 03:26
19 I Imagine - Mary Kiani 05:31

SampleCD

by Matthew Stone

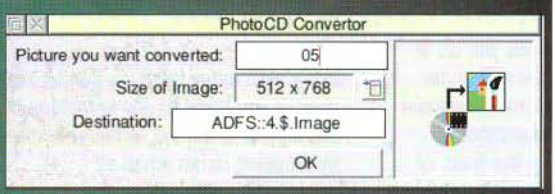
SampleCD is a command-line utility with a multitasking desktop front-end which reads audio data directly from music CDs. Who needs a sound sampler when you can obtain high-quality samples from audio discs!

SmallCD

by James Maietta

SmallCD is a special 'hide-away' CD player: once installed, holding down the left Alt key will pop up the player window, which allows you to play CDs and switch forwards and backwards between tracks.

PCD



by James Maietta

PCD allows you to translate PhotoCD files to the five standard resolutions using older versions of ChangeFSI.

To coincide with our special offer on CD-ROM drives, this month sees the first of our themed discs, containing numerous handy CD utilities

June's Theme: Graphics

Special Offer will be one of the most sophisticated art packages available on the Acorn Platform. Send your disc contributions to Paul Ashmore at the usual BEEBUG address. And remember, we pay for every contribution published!

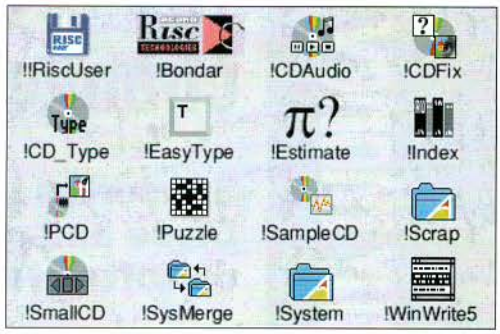
CDFix

Public Domain

CDFix uses the same mapping facilities as used by CD Type, so there is no need to run both programs at the same time. CDFix provides a solution to the problem of using 'dual-format' CD-ROMs such as PC and Mac CDs.

MAGAZINE DISC

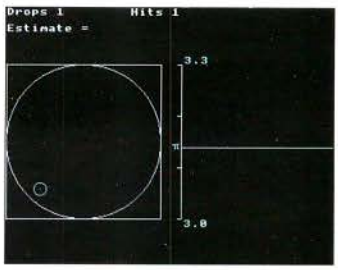
May 1996



Estimate

by Richard Taylor

The Estimate program accompanies the article on page 58, and



demonstrates graphically two methods of estimating the value of Pi.

CD Type

Public Domain

This little application is designed to fix various flaws within the current versions of Acorn's CDFS filing system. It works by extracting the existing CDFS from the RMA, then patching and reinstalling it.

ArcScan Data

The *ArcScan* index for this month's RISC User.

Bondar

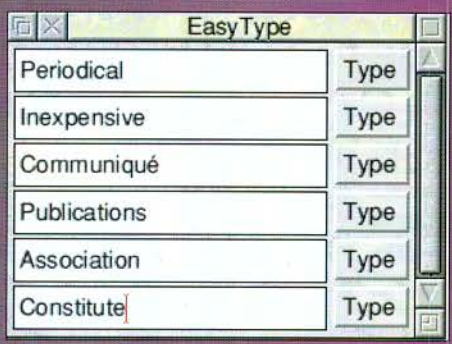
Alan Bonsor

This is the full text of the interview with Peter Bondar, Managing Director of Acorn Risc Technologies, in which he talks about his vision of the future of Acorn's technologies and products.

EasyType

by Ian MacDougall

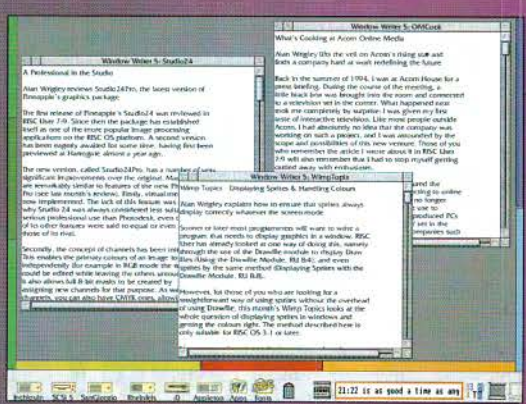
EasyType provides an easy method for children (or their parents or teachers) to type in words or phrases quickly. The words are entered into icons in the EasyType window, and when the Type button alongside each entry is clicked, the appropriate word or phrase is placed in the keyboard buffer, and appears to be typed at the caret.



Window Writer

by Alan Wrigley

To accompany this month's Wimp Topics article on multi-document editors, the disc contains a new version of the Window Writer application which demonstrates the techniques of displaying text in windows. This new version allows you to open several documents at the same time.



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Eesox Gold Internal SCSI CD-ROM drive only £157.45*

Eesox Gold External SCSI CD-ROM drive only £216.20*

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Note: Special offers are only available to six month or yearly subscribers to the RISC User Theme Discs. Individual Theme Discs, without the special offers, can be purchased for £4.75 + £1 p&p

Special offers are available to existing RISC User Disc subscribers whose subscription will be automatically converted to the new theme disc

The June Theme: Graphics
A very special graphics package at a very special price!

**Includes VAT & carriage in UK*

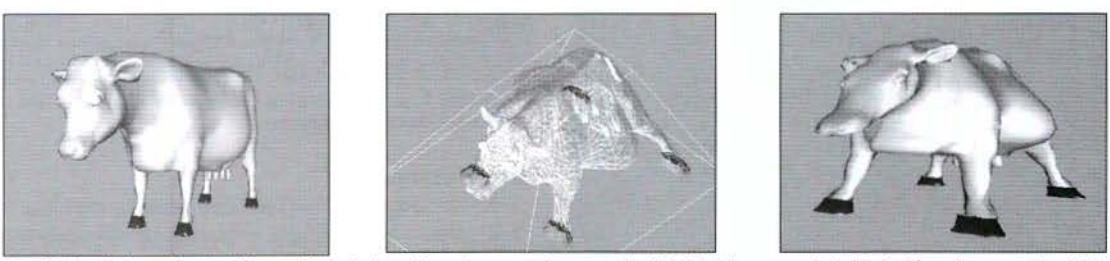
Quick on the Draw

Arriving with very little by way of fanfares, a new 3D modelling package from Italy looks set to have a major impact in the Acorn market. Richard Hallas investigates TopModel

TopModel is a 3D graphics package which has been a long time in the making. Despite beta test copies having been around for a year or more, there has been no real advertising of the package, and it has been sprung on a largely unsuspecting Acorn public. Well, I only wish all surprises were this good! From what I've seen so far, TopModel looks set to become the Sibelius of the 3D graphics world, at least as far as Acorn systems are concerned. Written by Sincronia Soluzioni Multimediali in Italy, TopModel will be distributed in the UK by Spacetech.

Basics

TopModel is a full 3D design and rendering package. Quite often, such packages come in combination with a ray-tracer or suchlike, but TopModel is, first and foremost, a 3D editor with advanced rendering capabilities built in. It isn't a ray-tracer (yet), but by use of supplied conversion utilities, it can output in formats which can be processed by other packages (such as the public domain Persistence of Vision ray-tracer) and it can also import objects and scenes from a wide variety of other packages, both from the Acorn world (e.g. Render Bender 2 and Illusionist) and outside (e.g. DXF, GEO, Envisage and many others).



The lattice deformation tool is used here to transform the normal cow on the left into the uncomfortable-looking shape on the right

TopModel has been designed from the outset to be as fast in operation and as easy to use as possible, without sacrificing powerful features. All editing work occurs in a single window, and to change views you have to click on a fancy cube icon on a tool bar. This may sound limiting, but in use it's very practical indeed, and seems much more convenient than having multiple views. The key is speed: all you have to do to change the view is to click on one of the faces of the tool bar's viewing cube, or else hold down Ctrl on the keyboard and Adjust-drag the mouse, in which case the scene rotates as you drag (using Select zooms in and out). Assuming you haven't got one of the highest quality display modes turned on, the whole scene will spin around as you drag. It's absolutely fluid, flicker-free and instantaneous. TopModel provides ten display modes: simple points only, then wire-frame in grey-scale and colour, and similar pairs of mono and colour views in flat, Gouraud and Phong shading. Finally there's a very high-quality view calculated in 24-bit colour (though you can currently edit only in 256 colours), and you can save out pictures in 24-bit colour for external viewing. Texture mapping and transparency can be turned on or off independently.

Unusually, TopModel takes the approach of having the *z*-axis (which is usually associated with depth) pointing upwards; the manual claims that this is to liken it to a sheet of paper: when you are sitting and drawing, the *x* and *y* axes are flat on the table-top, and the *z*-axis sticks vertically into the air. True enough, but I still think of *z* as going 'into' the page, and given that monitor screens are vertical anyway, this new orientation does demand a certain period of readjustment on the part of the user. After that, though, everything else is extremely logical.

It does take a little time to get used to the user interface, which is fairly complex; though again, it's all extremely logical. The main window has two attached toolboxes: the vertical one is concerned with numerous viewing options, whilst the horizontal one at the bottom switches between two modes, and concerns creation and manipulation of objects. There is no conventional menu structure, which is something I rather missed; all the standard facilities of File, Edit and View menus exist, but they're accessible from the toolboxes and via keyboard short-cuts only, and it takes some time to learn what all the icons mean because there are lots of them. Nevertheless, their layout is sensible. The main window can be resized by dragging its corner, though there are no scroll bars; panning the scene is achieved with the mouse, and I found this approach very acceptable.

TopModel	
Supplier	Spacetech 21 West Wools Portland Dorset DT5 2EA Tel. 01305 822 753 Fax 01305 860 483
Price	£99.50 ex. VAT

Creation and manipulation

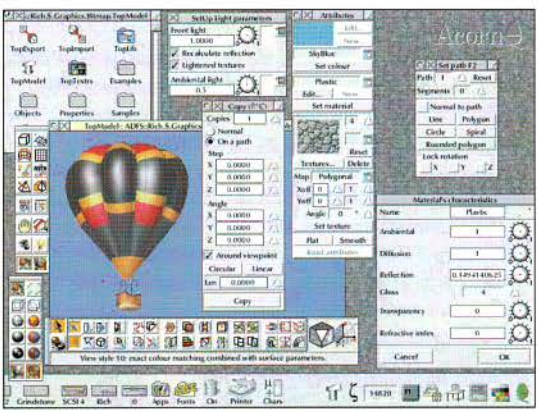
It says a lot about the flexibility of the package that the first object which the manual's tutorial gets you to create is a spiral staircase. The basic facilities for creating objects initially are very powerful indeed, but the tools available for their subsequent manipulation of objects are even more so.

There are lots of ways to create any given object. TopModel works, fundamentally, in terms of points, lines, polygons, Bezier curves and Bezier surfaces. Pre-defined solids are cubes, spheres, pyramids, tori and pipes, but each can be made as polygons or Bezier surfaces, and each has a variety of settings to cover every conceivable variation (for instance, pyramids can take the form of cones or cylinders, be truncated and have an arbitrary number of edges). In addition to solids, there's a path-creation tool just like the one in Draw, but with the ability to create extruded objects as well as just lines and planes. There are also tools to make Bezier or polygonal planes and place light sources, and there's also a splendid library facility with little dragable previews. Three sets of 18 objects are provided by default, but you can add further libraries of your own.

Fiddling with Beethoven

The nice thing about creating objects in TopModel is the precision with which you can do it. A lot can be done with the mouse alone, particularly as there's a fully definable grid. In addition, though, all aspects of creation (position, dimension and other attributes) can be set via editable fields with associated bump arrows, and once an object has been placed, its position can be edited just as easily via coordinates in a dialogue box. Indeed, you can move objects around just by pressing cursor keys, and movement can be locked along individual axes, too.

Basically, TopModel works in quite a similar way to Draw and ArtWorks, but in three dimensions. Because objects are made of points, polygons and surfaces, there are different ways of selecting them. You can select anything from simple points (e.g. a corner of a triangle) through primitives (polygons or Bezier surfaces) to whole objects (nets of primitives) by clicking or dragging with Select and Adjust for the expected effects. Once selected, objects are normally moved when you drag them, but other drag modes allow you to rotate or scale them, and you can decide the axes along which all of these operations should be performed. There are further time-savers, too: for example, if you have dragged over just a few of the points you want, a click on a button will select all the objects which have at least one point selected. Objects can be put into named groups which can be selected from a menu, and there are the expected manipulation options such as symmetry and distribution of objects (just like the alignment facility in ArtWorks, but in three dimensions). All the manipulation options can be performed by eye with the mouse or by entering numbers.

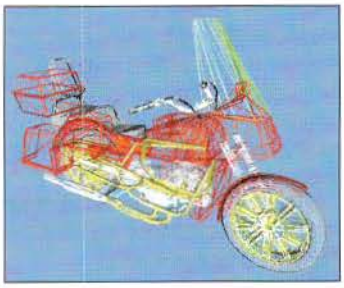


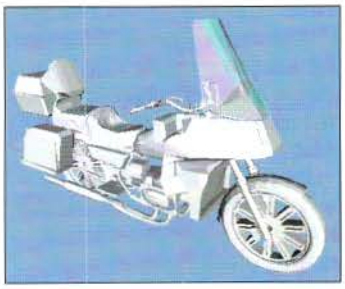
TopModel in action, showing the powerful Copy tool and attributes/materials editors

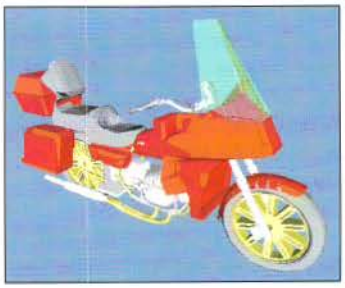
Bells and whistles

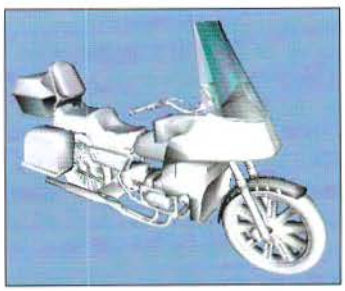
The remaining manipulation options are much more interesting. The Copy tool is far more complex than you might imagine, and lets you send copies spinning off in three dimensions, maybe along a pre-defined path (this is how the tutorial's spiral staircase is created). There's a magnet tool which lets you pull shapes around like plasticine; and another pair of tools equate to ArtWorks' Perspective and Envelope tools, and allow you to put an object into a box which can then be pulled out of shape in any way you like.

The torsion, sweep and extrusion tools are really remarkably powerful. Sweep and Extrude are, of course, basically intended to make 3D objects out of 2D ones, and are found in most packages of this type. Torsion lets you twist objects around; as a simple example, you could turn the top edge of a cube without turning its bottom edge, thus making a spiral shape. All three of these tools use a fancy dialogue box containing an editable Bezier path, and have lots of other options which are far too complicated to explain here. Suffice it to say that these tools are really incredibly powerful. Sweep, for instance, is quite capable of making an ammonite shape, and Extrude can quite easily make a wiggly worm of variable thickness or a vase, say, just out of a simple circle. Like Copy, Extrude can work









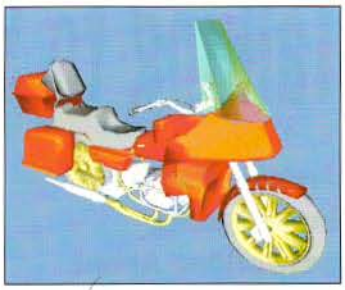
along a user-defined path (up to 16 can be created independently).

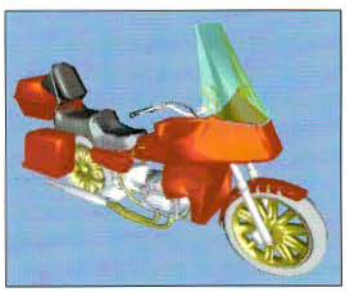
All objects in a scene should, of course, be given attributes. TopModel provides user-definable named colours, materials and textures. Materials include Plastic, Metal, Glass, Shiny and several others, and an editor lets you create new ones; editable attributes include ambience, diffusion, reflection, gloss, transparency and refractive index. An extendable library of textures is provided, with textures being bitmap images which are mapped onto objects in a variety of ways. As with the rest of the package, the flexibility is enormous.

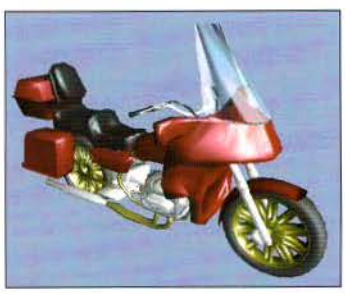
There are many other nice things in TopModel; for instance, sprites can be imported either as planes of coloured rectangles or as 'altitude maps', where the intensity of a pixel governs its height. Draw files can also be imported and there are lots of save formats. You can export sprites, 24-bit Clear files, Draw files, ASCII description files and even animations. Animations are currently rather limited, but future versions will let you animate along a path.

Conclusions

TopModel is stunning. It's not wholly above criticism; for instance there's no real Undo function, which is a major omission, and there are minor irritations such as the editing window's insistence on popping in front of other dialogue windows, and the fact that it won't currently work in more than 256 colours (though the latter two irritations will be corrected in the next release). Other than very minor quibbles, though, it's the best thing I've seen for a long time, and the author has some major plans for it in the future, including even more advanced rendering, multi-processor support, various new tools and primitives including text, morphing and ray-tracing, VRML support... the list goes on. It's also worth pointing out that my pre-release copy was extraordinarily stable, which bodes well for the future. TopModel is only the first in a series of packages for creating scenes and animations. I can't wait to see what else the author has up his sleeve, but in the meantime, if you have the slightest interest in any aspect of 3D work, buy this immediately! It will be money very well spent.







Talking to Strangers

Andrew Rawnsley investigates networking Acorn machines with PCs

Networking is one of those computer-related topics that is almost universally avoided by magazines and users alike. It's a taboo subject; a bit of a black art, and certainly not something to get involved with lightly. The reason is simple: in the past, networking on Acorn machines has been fairly complex. On PCs, trying to maintain even the smallest network is a full-time occupation; I speak as a one-time Network Manager for a Novell Netware-based system!

All this changed on the Acorn front with Acorn *Access* and, more recently, *Access+*. For the first time, networking was as simple as inserting a network card into each machine, turning the machines on, and clicking on the share drive; and it worked. Microsoft included similar support in Windows 3.11 and Windows 95, although typically it requires a bit of fiddling to get going. However, networking was still out of bounds for most people, even on their native platforms.

It's surprising, then, that in the last few months, new products have appeared not only to allow you to network your Acorns, but to link them to PCs too! KCS Premier has released *ArcShare*, which aims to provide Acorn Access for the PC, whilst ANT, in conjunction with Acorn, has produced a RISC OS client for Windows for Workgroups (Microsoft's networking solution, as mentioned above). This latter product, *OmniClient*, also incorporates front-ends for UNIX NFS, Acorn Access and Access+, and Acorn Fileservers, all sharing a common user interface.

ArcShare for Windows

ArcShare preceded OmniClient by some months, and has developed further since its original release late last summer. I've been using version 1.4, but 1.5 should be available by the time you read this, fixing one small niggle and promising to allow printer sharing.

ArcShare comes on one PC-formatted high density floppy disc containing both the software and Microsoft's TCP/IP protocol add-on for Windows 3.11. Because ArcShare runs under Windows (3.11 or 95), installation may be a little unnerving for some users, but it's well documented in the slim but comprehensive manual. The software itself has a *Setup* program which does all the hard work, and whether you'll need to use the TCP/IP protocol installer depends on which version of Windows you plan to use. The manual covers 3.11 as this is more complex.

Setting up the Windows 95 installation simply requires that you open the *Network setup* window and add a *New Protocol*: Microsoft TCP/IP. You then simply type in the values given at the back of the manual into the settings dialogue box, and hey presto, it's done! If you've made a mistake, then ArcShare tells you when you start it up. You'll also need to have an Acorn machine with Access installed and powered up with suitable ethernet cabling if you want to start accessing files.

All this may sound a little daunting, but believe it or not, I had ArcShare up and running in about 10 minutes once all the ethernet cards and cabling had been plugged in. However, it was on loading the software that I discovered its only major flaw: you have to use the ArcShare application to transfer files. ArcShare doesn't link into the File Manager, Network Neighbourhood or assign any drives, so you can't save or load directly from the Acorn's hard disc into Microsoft Word 6, for example. However, you can at least execute every operation from your PC (unlike OmniClient) via the ArcShare application, so I shouldn't complain too much!

In testing, though, I found the 'load ArcShare to transfer files' approach was easiest for new users to understand. The concept of loading and saving directly (as with a PC-only Windows network) caused difficulties as it was a bit out of the norm, whereas running a program for network file management was more readily accepted.

The ArcShare application itself opens a window listing available shared drives on one side of the screen and your PC's directory structure on the other. Below are buttons for copying and deleting files, etc. Simply select a directory on one side of the screen and a file on the other, click on a button, and the deed's done! The application also makes PC hard discs, CDs and floppies available to the Acorn machines, although you'll need to run the *Setup Shared Drives* program first.

From then on, you can also (and preferably) use your Acorn to copy files via the standard Access filer windows. ArcShare needs no Acorn software, and all the filetyping is handled at the PC end, so .TXT files appear with a text file icon, for example. However, a word of warning: copy the files to your Acorn first, as double-clicking on a file on the PC's hard drive from your Acorn may fail because (I quote) 'ArcShare is not an application server yet'. Hmm... let's hope v1.5 rectifies this, if only to

reduce the amount of jargon needed in a review!

So, there we are: ArcShare provides an effective networking solution which runs under Windows and allows you to manipulate files from and on both PC and Acorn machines, and does so easily. At present the only way I can achieve any form of printer sharing is to print to a file using an appropriate printer driver on either Windows or RISC OS, depending on which machine the printer is connected to, then transfer this file and send it directly to the printer on the machine to which it is attached. On an Acorn, this is done by setting the file to type *PrintOut* and dropping it onto the printer icon on the icon bar. On your PC, however, the easiest way is to drop into DOS and enter:

```
COPY xxxx.xxx lpt1
```

where *xxxx.xxx* is the file to print (the suffix is lower-case LPT1).

One interesting use of ArcShare that I came across was on a Risc PC with a network card which had been upgraded to the latest DCI4 drivers. ArcShare was being used from Windows to access files on the Acorn hard disc whilst the PC card was active in the same machine! This wouldn't otherwise be possible, as the PC partition can't be accessed by RISC OS whilst the PC card is running.

OmniClient

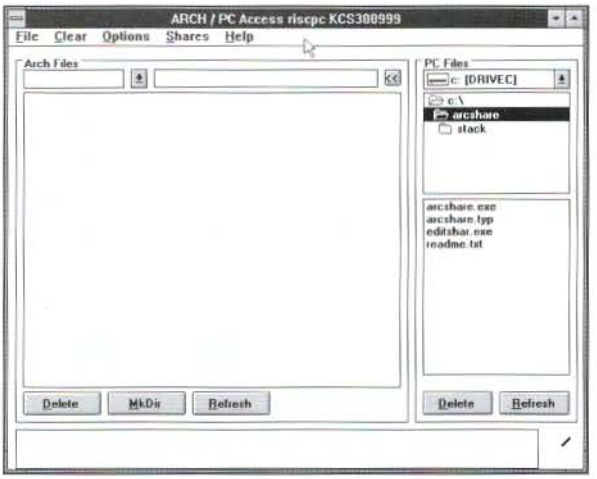
OmniClient is in some respects less ambitious than ArcShare, as it only provides access to drives from the machine it's running on; you can't use it to share your Acorn hard drives with a Windows PC. However, the software is Acorn-based rather than PC-based, which will be of comfort to some users. On the other hand, allowing an Acorn to talk to Windows PCs, UNIX machines and other Acorns all from one application is no mean feat; and at half the price of ArcShare, too. OmniClient, however, requires the latest DCI4 network drivers, which are best obtained as replacement ROMs for your network card (£10 each from ANT, but check with your supplier), as the software-only versions are likely to cause some headaches!

Unfortunately, just because it runs under RISC OS doesn't necessarily mean an easy set-up process. Of course you'll need to set up Windows for Workgroups on your PCs, but OmniClient itself is badly in need of an installation application. The first time I ran OmniClient on my Access+-equipped machine, I was told: 'Can't find AUN or Econet network - is the network software loaded?' which wasn't very helpful; Access+ was on my Ethernet card, and I was trying to load my 'software' - OmniClient! The solution involved opening OmniClient's *Files* sub-directory and modifying the *StartUp* file using Edit to tell it that I wasn't using an Acorn fileserver. For software that would be selling to schools, this kind of thing just isn't on. And as for setting up *Internet*, which is needed for Unix NFS support...!

Anyway, once the initial trials and tribulations were over, and I'd decided to ditch *Internet* and NFS support, the software settled down, and day-to-day operations turned out to be much simpler. On Access-based networks, OmniClient replaces your Access icons on the icon bar with its Net icon. From here you can select the hard drive to connect to other Access systems or log onto an Access+ password-protected system. Acorn fileservers also appear here. Unfortunately, there's no easy way of setting up a selection of regularly-used network drives to appear on the icon bar when OmniClient starts up. The solution lies in * commands, so check out the manual!

To connect to a PC drive, you first need to know the name given to the PC under Windows. It's a shame there's no auto-detection. You'll also need to know the name by which the hard disc has been shared, as this must be entered in the 'directory' field. Again, there's no list available, so it's down to noting the name with a pencil and paper! Once you've entered the details into the dialogue box, clicking OK will make the connection, or fail if you've mistyped one of the details... Again, * commands provide a way of connecting, and these can be included in a startup batch file. OmniClient insists on calling Windows for Workgroups networks *LAN Manager* networks, as they both use the same protocols (NetBEUI), so bear that in mind when referring to the index in the manual! LAN Manager is Microsoft's fileserver networking software, as in Windows NT.

Despite the criticisms, OmniClient's performance is excellent.



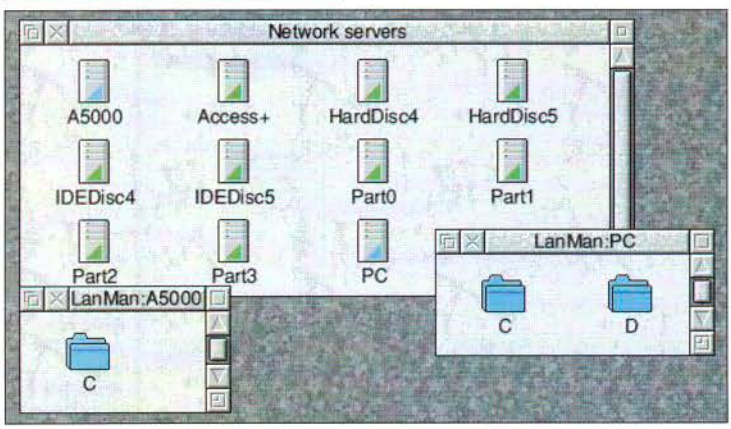
Accessing Acorn files with ArcShare for Windows

PRODUCT INFO

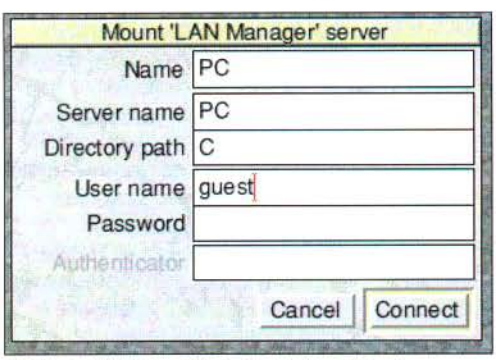
Product	OmniClient
Supplier	ANT Ltd PO Box 300 Cambridge CB1 2EG Tel. 01223 567808 Fax 01223 567801
Email	sales@ant.co.uk
Prices	Single user: £49 ex. VAT Site licence: £249 ex. VAT
Product	ArcShare
Supplier	KCS Premier 73 Chapel Street Leigh Lancashire WN7 2DA Tel. 01942 677777 Fax 01942 672300
Email	sales@kcsprem.demon.co.uk
Prices	£99 ex. VAT

obviously save to the PC, too. Filetyping is also supported, but again it means fiddling with a text file. Why doesn't someone come up with a System file that acts as a global extension map for all applications? In OmniClient alone, you have to set up maps for both *Omni* and *Internet* (for NFS) applications, and you'll probably have done it for DOSFS already!

OmniClient also includes printer sharing, which is a useful addition, although it's a little complicated if you're connecting to a LAN Manager (Windows for Workgroups) printer. A new version of *Printers* is planned to support OmniClient directly.



A Windows 95-based PC, several Access shared hard drives, and an A5000 with podule-based PC card and Windows 3.11. All are available via OmniClient, but it took several hours' work to get there.



Making a Windows PC visible to OmniClient

It seems slightly faster than ArcShare, and allows you to double-click on a file on the PC hard disc to load it. You can

Remember that printer sharing is only provided for printers connected to other machines; the other machines can't share your printers. Fortunately, Access provides this for other Acorn users on your network.

Recent news indicates that OmniClient may gain Macintosh and Novell Netware connectivity in the near future, so if this is of interest, I suggest contacting Acorn or ANT for possible release dates.

Conclusions

OmniClient represents great value for money, provided you can put up with the loose ends configuration-wise. The much enhanced connectivity it gives for your Acorn (and I can't stress the 'for your Acorn' enough) is to be welcomed with open arms, if you need it all; it's just a shame that it won't serve your drives and resources to other machines. On a fileserver-based network this shouldn't be a problem, but if, like myself and many, many other users, you are using Windows for Workgroups (or Windows 95), the whole concept of a workgroup sharing all drives and files falls over. Interestingly, the standard for PC fileservers is still Novell Netware using the IPX protocol, but OmniClient has no support for either as standard. Windows NT, which is supported, is still restricted to large corporates and to merchant banks; not exactly Acorn territory! However, if you're an Acorn user amongst a mass of networked PCs, then OmniClient must be an essential purchase.

On the other hand, ArcShare does exactly what it says: it provides two-way connectivity between PC and Acorn with no fuss, and no additional hardware on top of your ethernet cards and cable. That it can be used from both your PC and your Acorn must make it the product of choice for people who simply want to connect up to a PC with the minimum of hassle. The fact that it doesn't need a Windows for Workgroups network first must also be an advantage. I feel ArcShare is best used in a network dominated by Acorns. If, for example, you've got a PC acting as an Internet machine, but for the most part use Acorns (as is common in schools), then some degree of networking must be essential to transfer large files. Look no further than ArcShare.

Wimp Topics: Multi-Document Editors

by Alan Wrigley

One of the good things about a multi-tasking environment is that in theory you can edit several different documents at the same time. It would be nice if this versatility could spread across all programs written for RISC OS, but all too often programmers stop short of multi-document capability, perhaps believing that it would make their code unnecessarily complicated. In fact, it is very easy to implement in Basic, especially if you use a memory manager such as the RISC User Memory Manager.

Let's look at what is involved. If you are writing a program that allows the user to edit some data, then you will have allocated a block of memory to hold that data. If you use the Memory Manager to allocate that memory, then in principle you can just as easily allocate a second block for another document, and then a third and so on until there is no more memory left.

This isn't quite the end of it, of course. There are a couple of other things you must do. Firstly, each document requires its own window, so instead of creating a single window during initialisation, you must store the template in memory and create a fresh window from the same block whenever a new document is opened. And secondly, your program will have a number of variables that apply specifically to the document being edited: data length, cursor position, window handle and so on. These need to be kept in a separate store, one set of variables for each document. I will refer to this store as the document's parameter store. If you are restricting the number of documents to a specific maximum, then you could use arrays for this (e.g. *whandle%(0)* is the handle for the first document, *whandle%(1)* for the second and so on). However, it's so much better for the user if the number of documents is limited only by available memory, and in this case you need the greater flexibility of parameter stores which can be created and removed at will.

A concrete example

To illustrate the process, let's take that old *Wimp Topics* favourite, *Window Writer*. This has gone through many incarnations, the most recent being version 4 in RISC User 8:8. Up until now, this has only been capable of opening one document window at a time, but in this article I will take you through the process of converting it to multi-document capability. As usual, the complete application can be found on this month's magazine disc.

First of all, then, we need to dimension a separate window block to hold the document template. We create all the other windows (in this case, just the info box) at the time of loading and then discard the templates as before, but the document window template sits in its own block waiting to be used whenever a new document is loaded. If the document window has indirected data, then you will need a separate buffer for each incarnation of the window. This should then be located in the parameter store, and a pointer to it included in the window definition at the time of creation. Note that "Wimp_LoadTemplate" needs to have an indirected buffer specified when the template is loaded; you can use any spare block of memory as a dummy buffer for this, for example your main parameter block, *block%*.

So your initialisation routine will include something like this:

```
DIM block% 1023, winblock% 127,ind%
255,name% 11
SYS "Wimp_OpenTemplate",,".Templates"
$name%="InfoBox"
SYS "Wimp_LoadTemplate",,block%,ind%,
ind%+256,-1,name%,0
SYS "Wimp_CreateWindow",,block% TO
infohan%
$name%="Main"
SYS "Wimp_LoadTemplate",,winblock%,
block%,block%+30,-1,name%,0
SYS "Wimp_CloseTemplate"
```

This creates the info box using *ind%* as the indirected buffer, and then loads the main window template using *block%* as a dummy buffer, but doesn't create the window.

The application will now sit on the icon bar waiting for the user to load a file or start a new document. When this happens, you need to allocate a parameter store to hold the document's variables, create a new window using *winblock%*, and allocate some space to store the data. In the case of Window Writer, you also need to allocate space each time for the list of pointers to the start of each line of text.

If you're converting a single-document editor to a multi-document one, you need to examine the program very closely to determine which variables and parameters are specific to the document and which apply to the whole program generally. All those in the former category should be hived off into the document's parameter store. In the case of Window Writer, the following items are document-specific:

Window handle
Window title
Document data block
Marked selection pointers
Line count
Line start pointer list

Memory management

Probably the simplest way to handle this is as follows: first of all, set up a block of memory which will hold a sequence of pointers to the start of each parameter store. Make this large enough at the outset to hold, say, 10 pointers and then expand it if more than 10 documents are opened. Place zero in the first pointer to indicate that this is the next available space. Whenever a file is loaded, allocate a block of memory for the document parameter store, create the window, fill in the parameters and load the data. Now place a pointer to the parameter store into the first available space in the pointer sequence, and set the next word to zero.

A global variable, say *currentdoc%*, can now be used to point to the parameter store that refers to the current document. All parameters can be accessed by reference to an offset from this pointer, and so all variables used will be the ones that relate to the current document. For example, in previous versions of Window Writer, any selected text is defined by *mark1%* for the top line and *mark2%* for the bottom. With only one document to cope with, the redraw routine, for example, can simply draw inverted text from *mark1%* to *mark2%*. In the multi-document version, the current document has to be found at the start of the redraw routine (as described below), and then the routine draws from *currentdoc%!mark1%* to *currentdoc%!mark2%*, where the two variables now indicate offsets from the store, and the relevant values have been placed in the store instead of being assigned directly to the variables.

All this may sound a little complex, but it's really quite straightforward. I would recommend that initially you use the static version of the Memory Manager (i.e. the one published in RISC User 7:5) and not the dynamic version. The reason for this is that in the parameter store you will be storing a pointer to the data, but if you use a shifting heap the value of that pointer may well change. You can of course get around this if you code your program carefully, but to start with, it will be much easier to take the simpler route until you've got the program working properly.

Window Writer requires a parameter store of 56 bytes. This holds 28 bytes of window title data ("Window Writer 5: " plus up to 10 characters of leafname); the window handle, data block pointer, *mark1* and *mark2* plus *oldy* which indicates while dragging where the previous extent of the drag has got to, *linecount* which is the number of lines in the document, and finally a pointer to the list of line start pointers. To refresh your memory, the line start pointers are a simple way of speeding up redraw: having calculated from the clipping rectangle which lines need redrawing, you can then use the list to go straight to the start of each one. So the initialisation routine contains:

```
title%=0:curhan%=28:data%=32:mark1%=36
mark2%=40:oldy%=44:list%=48:linecount%
=52
sequence=FNallocate(40):!sequence%=0
```

where *sequence%* is the block which will hold the sequence of parameter store pointers.

Loading the file

The file loading routine now has to be altered somewhat. Having found the file length in *len%*, we now allocate a block for it (*newdata%*) and a separate block for the parameter store (*currentdoc%*), then put a pointer to the former into the latter, and a pointer to the latter into the sequence. The window title is then placed in the parameter store, and a pointer to it is put in the window block. The window is then created, and the other relevant items in the parameter store, including the window handle, are filled in:

```
newdata%=FNallocate(len%+4)
currentdoc%=FNallocate(56)
a%=sequence%
REPEAT a%+=4:UNTIL a%!-4=0
a%!-4=currentdoc%:!a%=0
$(currentdoc%+title%)="Window
Writer 5:"+FNleaf(file$)
winblock%!72=currentdoc%
SYS "Wimp_CreateWindow",,winblock%
TO a%
currentdoc%!curhan%=a%
currentdoc%!data%=newdata%
currentdoc%!mark1%=-
1:currentdoc%!mark2%=-1
```

The file is then loaded as before, a block set up for the line pointers, and the list address put into the

parameter store:

```
SYS "OS_File",16,file$,newdata%,0
newlist%=FNallocate(1024)
currentdoc%!list%=newlist%
```

The rest of the load routine can now go ahead as before, using the current values which are held in *newdata%* and *newlist%*, rather than global variables as were used before. Once the calculations have been done, the number of lines can be put into the paramater store:

```
currentdoc%!linecount%=lc%
```

where *lc%* has been used as a temporary line count variable.

The rest of the program is quite straightforward. Any procedures which need to access the data in a document window need to be modified so that at the start of the routine *currentdoc%* is set to point to the parameter store that relates to the document in question. This is done by reading window handles from the store until one is found that matches the handle of the window being accessed. For example, a redraw request is accompanied by a block in which the first word is the window handle. At the start of PROCredraw we therefore need the following line:

```
currentdoc%=FNmatchwin(!block%)
```

A mouse click, on the other hand, has the window handle at *block+12*, so for this we need:

```
currentdoc%=FNmatchwin(block%!12)
```

The function *FNmatchwin()* which finds the pointer to the parameter store looks like this:

```
DEF FNmatchwin(w%)
ptr%=sequence%
REPEAT
s%=!ptr%:ptr%+=4
UNTIL s%!curhan%=w% OR !ptr%=0
IF s%!curhan%w% PROCerror("No such
window",1)
=s%
```

All variables which were used directly are now accessed via offsets. Thus in the redraw routine, *linecount%*, *list%*, *mark1%* and *mark2%* are replaced by *currentdoc%!linecount%*, *currentdoc%!list%*, *currentdoc%!mark1%* and *currentdoc%!mark2%*, and in the click and drag routines the window handle is specified as *currentdoc%!curhan%* rather than *whandle%*. Needless to say, this is all rather less cumbersome if you are writing in Assembler, but at least Basic does allow you to do this very effectively with its indirection operators.

Provided you structure your code properly (which you should do anyway), you should find it no more difficult to provide multi-document editing than the single document variety.

Memory Manager update

To round off this month, I want to return to the RISC User Memory Manager, and in particular the problem I mentioned a couple of months ago regarding the slow speed at which large blocks are deallocated. The original routine disposed of unwanted memory by reducing the heap and the Wimp slot repeatedly by a page at a time until no more could be lost. While this worked perfectly well for small files on a machine with a 32K page size, once you start using the Memory Manager for, say, deep colour sprites on a Risc PC (with a 4K page size), the speed really suffers. So I have rewritten the deallocation routine slightly to make it very much faster. If you are using the static version (RISC User 7:5), you need to replace *PROClosememory* with the following:

```
DEF PROClosememory
LOCAL size%,x%,s%
SYS "XOS_Heap",1,heap% TO ,,size%
size%=(size% DIV page%)*page%
IF size% THEN
 SYS "XOS_Heap",5,heap%,,-size% TO
,,,s%;flag%
 IF flag% AND 1 THEN
  x%=(s% DIV page%)*page%
  IF s%-x% SYS "XOS_Heap",5,heap%,,
s%-x%
 ELSE
  x%=size%
 ENDIF
 SYS "Wimp_SlotSize",appsize%-x%,-1
 appsize%-=x%:heapsize%-=x%
 ENDIF
 ENDPROC
```

For the shifting version (RISC User 9:1), replace the same procedure as follows:

```
DEFPROClosememory
LOCAL x%
x%=(free% DIV page%)*page%
IF rpc% THEN
 SYS "OS_ChangeDynamicArea",dynarea
%,-x%
ELSE
 SYS "Wimp_SlotSize",appsize%-x%,-1
 appsize%-=x%
ENDIF
free%-=x%
IF rpc% THEN
 SYS "OS_DynamicArea",2,dynarea% TO
,,a%
 IF a%=0 PROCremovearea
ENDIF
ENDPROC
```

Compiler Corner: Windowed Class Libraries

Thomas Down investigates Wimp programming from C++

Over the years, many different C libraries have been written with the intention of making it easier to program the RISC OS window manager. The first such library was Acorn's *RISC_OSLib*, though today, alternatives such as *DeskLib* are now more commonly used. All such libraries depend on each program having initialisation code which registers handler functions which are called when significant events occur. Even when using the Toolbox, events are usually handled by the *EventLib* library, which follows this same approach.

In theory, almost any of these C libraries can be used from C++. Certainly, recent versions of DeskLib work perfectly without any modification. RISC_OSLib is not compatible with C++, but this is only due to its use of the reserved word, *template*. When using such a library, the only point to note is that it is not possible to give a pointer to a normal class member function, so your event handlers will have to be declared either as static members of classes, or as stand-alone functions which are not members of any class. However, many C++ programmers prefer an alternative approach to windowed programming. Window class libraries define base classes which correspond to the various objects found in a windowed environment: windows, icons and so on. The classes contain virtual functions which are called automatically when events occur. For instance, a window class may contain a virtual *click* function. For each window in your program, you define your own class in which the appropriate virtual functions are overloaded. Your functions are called automatically at the appropriate time, without any code to explicitly register them as event handlers. Window class libraries make it easy to write code which rigorously follows an object-oriented design. They generally also require less source code to write a given application.

A number of window class libraries have been available on other systems for several years now, and are becoming increasingly popular. One of the best known examples in the PC world is the Microsoft Foundation Class library, although there are several others in common use. Unfortunately, the development of C++ under RISC OS has been relatively slow, and until now there has been a shortage of window class libraries. There have been some suggestions that the Microsoft foundation classes could be ported to RISC OS. This would certainly make life easier for any PC software companies intending to release software for Acorn machines, but it has not happened yet. Recently, though, the first native RISC OS class library has been released as freeware, and it looks like there will be more to follow.

Enter Vista

Vista was written by David Allison, the developer of Easy C++, and earlier versions have been shipped with that compiler. Vista makes extensive use of C++'s exceptions to handle any window manager errors. Until recently this has meant that Vista is only usable with Easy C++, but now a version has been produced which can be built under any RISC OS C++ system. This was achieved by defining a macro, *throw*, which reports an error and then exits. The result is an error-handling system which is considerably less flexible than true exceptions, but which makes Vista available to a much wider audience.

The current version of Vista is available as freeware, either on disc or by FTP. The package contains versions of the library compiled with both Easy C++ and Acorn C++. Easy C++ users should upgrade to the latest version of the compiler and debugger if they intend to make use of Vista. The author claims that Vista is usable under Acorn C++, but my experiences of using this package are not good. Including the Vista header files produces a large number of warning messages, which are mentioned in the documentation, but which suggest that the compiler is not entirely happy. More seriously, many of the supplied example programs completely refuse to compile. I cannot really recommend the combination of the current versions of Vista and Acorn C/C++. Fortunately, if you do not have Easy C++ and want to try out Vista, all is not lost, since, with minimal modifications, Vista compiles easily under the RISC OS port of the GNU C++ compiler.

Vista in use

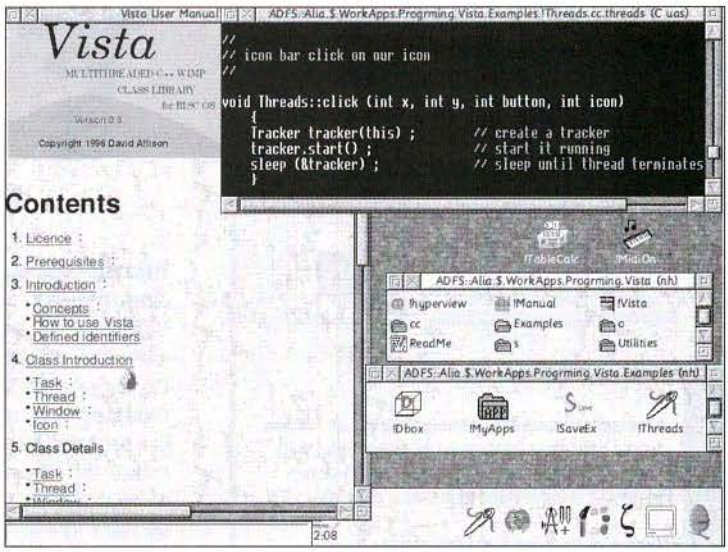
Vista is structured as a fairly conventional windowed class library, providing classes such as Window and Icon. Your application could contain a class called, for example, *MainWindow*, which is derived from the Window class. The MainWindow

constructor calls the Window class' constructor, passing it the name of a template to use when creating the window. At this point, it is also possible to pass the name of a menu. If this is done, the library searches through a special menu definition file (which, like *Templates* and *Messages* files, is present inside most Vista applications) and attaches the relevant menu to the window. Of course, it is also possible to implement dynamic menus by replacing a virtual function.

Normally, when a click occurs inside a Vista window, the class' *click* member function is called. However, it is also possible to create objects derived from the Icon class, whose *click* functions are called in preference to that of the window class. This gives a considerable degree of flexibility as to how events are handled.

Vista also provides a number of higher-level classes derived from the Window and Icon classes. These include an OK button for dialogue boxes, and a SaveBox class which handles all the icons within a *Save as* window and also implements the RISC OS save protocol. Like the *saveas* function in RISC_OSLib, a specified function is automatically called once the file icon has been dragged to a directory viewer.

All this is relatively standard, and will be familiar to anyone who has used such a library on another platform. But Vista has one feature which makes it special, at least by RISC OS standards. The latest version of the library includes complete support for pre-emptive multitasking and multithreading. There are various ways to use this, but the most important is entirely automatic. Whenever a Wimp event arrives, a new thread is created, and is multitasked pre-emptively. This means that, even if the code which handles that event takes several seconds to execute, multitasking will continue without interruption. The only



Vista includes online hypertext documentation

exception is window redraw code, which cannot be multitasked due to restrictions imposed by RISC OS.

Vista is documented by a set of HTML files. These can be viewed using a hypertext browser application which is supplied. The text is quite comprehensive, and the use of hypertext links throughout the documentation makes checking cross-references easy. You must, however, make sure that the *DrawFile* module is loaded before running the browser.

Using Vista with GNU C++

It is relatively easy to build a version of Vista which can be used with GNU C++. The current version of this compiler for Acorn machines is 2.4.5, which does not support exceptions. A port of version 2.7 is in progress, and this will hopefully include exception handling. Compiling Vista with *gcc* is similar to compiling it with Acorn C++. When compiling and using the library, it is best to use the Acorn shared C library instead of UnixLib. If you have Acorn C installed, this can be achieved very easily by using the *-mstubs* option.

Almost all the source modules in the *c* directory compile immediately with gcc, as long as the directory is renamed *cc* (to tell the compiler they are C++ files). Note that the *tasm.cc* module should not be compiled; this is intended for Easy C++ users only. The only module which causes a problem is the *objects.cc* module; this is due to gcc objecting to the *math.h* file which is supplied with Acorn C/C++. To cure this, load the file into an editor and comment out the lines which *#define* macros for *sin*, *cos* and *atan*.

The multithreading support code is in the assembler file *s.tasm*. This can be assembled using gcc; it is an object assembler as well as a compiler! However, the s.tasm file supplied with Vista makes some assumptions about how the Acorn compiler handles function names, which are not true under GNU C++. To fix this problem, search for all occurrences of the name *start2__6ThreadFv* (note the double underscore), and remove the *Fv*. Do the same for *context_switch__13ThreadManagerFv*. Once all the source modules, plus the s.tasm module, have been compiled, they can all be combined into a single library using LibFile.

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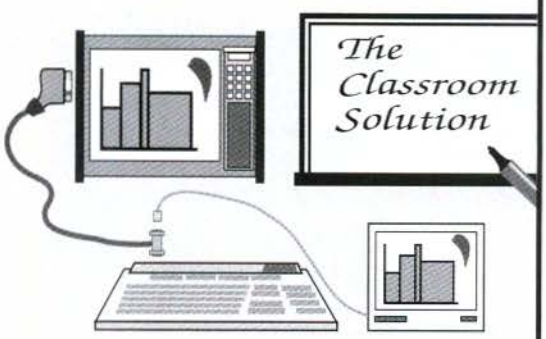

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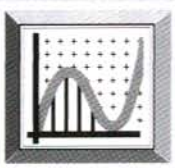


TIPS & HINTS

Keep sending us your hints and tips. Published submissions will receive a free RISC User disc of their choice

Inconsistencies with OS_GBPB
Alan Wrigley

OS_GBPB 9, 10, 11 & 12 are very useful SWI calls that enable you to find information about files in a directory; for example, the name, length, filetype, etc. The calls are widely used by file-finders and other programs that need to ascertain what files are in a particular directory before they can operate on them. On entry to the calls you can specify a wildcarded name to match, which allows you to retrieve information only on files that match the name. One thing you need to beware of, however, is that the results from OS_GBPB 12 are inconsistent with the others. For all the calls, if the next file in the directory does not match the wildcarded name, R3 returns with zero to indicate that no files have been matched. However, for OS_GBPB 9, 10 & 11, the data for the last file read is still placed in the buffer, allowing you to read it even if the name did not match. With OS_GBPB 12, this is no longer true, and the data in the buffer is undefined.

Risc PC desktop fonts
Nathan Micholey

The way that configuration for the desktop font on a Risc PC is stored relies both on the CMOS RAM and the settings in *Boot:Choices.Boot.PreDesk.Configure*. The CMOS RAM configuration holds a nibble (byte 140, bits 1 to 4) which can take the following values:

```
    0: Use value of <Wimp$Font>
    1: Use system font
2-15: Use one of the ROM fonts
```

The value of *<Wimp$Font>* is set up by the *Configure* file, and if a font that is not in ROM is selected, the CMOS nibble is set to 1 in order to use that font. This can therefore be temporarily overridden by setting *<Wimp$Font>* to another font name. This can be useful for application writers who want to test their dialogue boxes with different fonts without disturbing the machine configuration. However, if the CMOS nibble does not hold the value 1, this temporary change cannot be made. Therefore, to use a ROM font in the desktop while still allowing temporary changes of desktop font, configure a non-ROM font, such as Sassoon, then edit the Configure file to hold the desired font name. Deleting that line or unsetting *<Wimp$Font>* will select the system font instead.

Using Pocket Books with an A-Link

Matt Browne

You can transfer multiple files much more quickly from your RISC OS machine to your Pocket Book if you set the *Update lists* preference in the Pocket Book desktop to *Desktop button* instead of *Auto*. This will prevent the Pocket Book from updating its lists immediately whenever a file is transferred. Change the preference back to *Auto* afterwards for normal behaviour.

Shortcomings of mode 32

Richard Hallas

Modes 29 to 32 provide 800 by 600 (SVGA) resolution screens in 2, 4, 16 and 256 colours respectively. However, rather unhelpfully, mode 32 was not defined as standard until RISC OS 3.5 arrived, so RISC OS 3.1 users are deprived of the 256-colour version of this screen mode. It's easy to forget that mode 32 is new to Risc PCs when it's a mode that you would logically expect to be available.

Centring the display in Kaleidoscope

Ken Cowap

If your computer is unable to display mode 32 (see the previous hint), you will find that the screen display produced by *Kaleidoscope* program on the RISC User issue 9:4 disc is not centred on the screen. To correct this problem, line 160 may be amended as follows. Change the line from:

```
    OFF:CLS:PROCsetup:ORIGIN 800,600
```

to become:

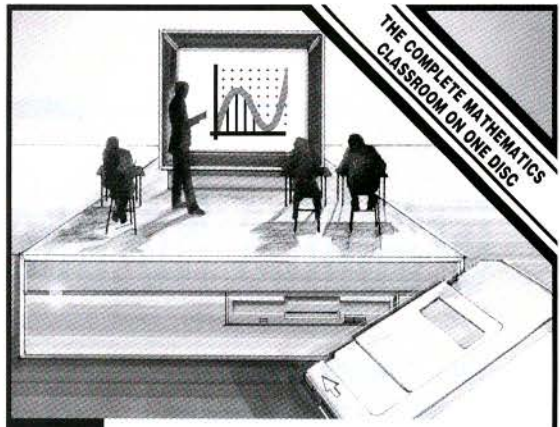
```
    OFF:CLS:PROCsetup:IF C%=1 ORIGIN
800,600 ELSE
    ORIGIN 640,512
```

Problems with icon button type 1

Mike Whiteman

If an icon has its button type set to 1 (*notify task continuously while the pointer is over the icon*) and your program needs to know what icon the pointer is over, either using data returned in Block%!36 from Wimp message &502 (*Message_HelpRequest*) or using SYS "Wimp_GetPointerInfo", then -1 is returned rather than the icon number. If there is more than one icon with button type 1, then each icon returns -1 so that you cannot distinguish between each one. If you use a program such as *Vigil* to discover the icon numbers, then any icon with button type 1 will apparently be ignored, with the display not being updated from the last 'valid' icon you examined. The only way around this seems to be to set the icon button type to 0 (*ignore mouse clicks*).

Please send in your hints and tips on any aspect of using Acorn's RISC OS machines and Pocket Books. Published submissions will receive the magazine disc of their choice.



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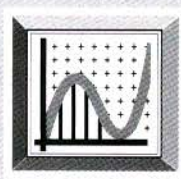


Graphics Notebook

This column provides hints and tips for users of all painting and photo-retouching packages

Using Photodesk on low-memory machines

Nobilangelo Ceramalus

Photodesk users who are compelled to make use of virtual memory due to lack of RAM may well be tired of hearing the hard disc thrashing away! If you are working through a big image, such as a scanned slide or A4 photo, and retouching it or cleaning off dirt by copying clean flecks over the dirty ones, the job goes much faster if you can minimise disc-thrashing.

To do that, work through the image methodically in bands, each band being the height of a window; i.e. move across the image in screenfuls, left to right, then click the window down a band and move back, right to left, then click down and move left to right, and so on. Then Photodesk will not have to keep loading in new bits of the image, which is what it must do if you hop all over the image randomly. You will always be working within the currently-loaded chunk. The only delays will be when you change bands and the disc whirrs away to swap the old chunk out and the new one in. It is also a good idea to hit the space bar at the end of each band so as to fix that segment of work in place before going on to the next one.

Drawing freehand straight lines in Studio 24

Alan Wrigley

Drawing straight lines freehand with the mouse, or even with a stylus, can be very difficult unless you have a very steady hand. A useful tip if you are using *Studio 24* is to make use of the *Spacing* setting. This dictates how quickly the line will follow the pointer as you move the mouse across the canvas. On a very low setting there will be a considerable delay between the movement of the mouse and the completion of the line. If you position the mouse where you want the start of the line, and then move it very quickly to the end point, a perfectly straight line will be drawn between the two points. With a bit of practice you can use this technique to draw all kinds of straight-sided shapes by moving the mouse while the line drawing is in progress in order to change direction.

Removing moiré patterns

Nobilangelo Ceramalus

A quick way to get rid of unwanted moiré patterns from scanned images is to load the scan into Photodesk, click on the *Image Processing* button (the Organ pipes icon), then click Menu on the *Image Processing* panel and choose Cyan. That will restrict any future processing to the Cyan channel. Then select *Enhance*, and either *Smoothing (mean)* or *Smoothing (Gaussian)*, make the strength whatever you like (100% is reasonable to try at the start), then press the *Magic Wand* button, select *Whole Image*, and an opacity setting (again, 100% is a reasonable start), then click on the image. Hey presto! Most of the moiré pattern will vanish. If it does not, click the magic wand on the image again. The second pass may not need such high opacity and/or strength settings.

A slower way, but one that produces an even better result, is to start by rotating the image in *ImageMaster* (not Photodesk, because it crops the corners), and do three rotations: -7 degrees, +4 degrees, and +3 degrees. That will remove most, if not all, of the problem. Then, if you want to get perfection, take the image into Photodesk and do the Cyan process already described.

ChangeFSI and PhotoCD files

Richard Hallas

ChangeFSI is able to convert PhotoCD images, producing sprites of the same resolution as PhotoCD *Base* size. It is also possible to obtain sizes other than Base; you must set a system variable by pressing F12 and entering:

```
Set ChangeFSI$PCDindex <n>
```

where *n* is in the range 0 to 5. A value of 0 gives a thumbnail image of size Base/64, and values of 1 to 5 give, respectively, Base/16, Base/4, Base, 4*Base and 16*Base.

What is not at all obvious is the fact that you must have a copy of Acorn's *PhotoCD* module loaded in order to produce an image of any size other than Base. This module is supplied with packages which support PhotoCD images, such as Photodesk and Compo, and Acorn's PhotoCD viewing software, PhotoView. If the module is not loaded, ChangeFSI ignores the value of *ChangeFSI$PCDindex* and only produces Base-sized images.

The latest version of ChangeFSI, version 1.15, is available on Acorn's FTP site:

```
ftp.acorn.co.uk
```

Please send in your hints and tips on using Paint, The Big Picture, Revelation, ProArtisan, Studio 24, Photodesk or, indeed, any other relevant bitmap graphics package. Published submissions will receive the magazine disc of their choice.

PC Matters

Alan Bonsor provides more useful hints, tips and advice for PC card users

I was browsing around the Web the other day, following various links from Aleph One's site, when I came across two invaluable little utilities which can greatly enhance the functionality of the PC card.

The first, called *HDExtender*, is so small - under 2K uncompressed - that I initially thought it was a joke application. It's definitely not, and will prove invaluable to anyone whose PC partitions are currently looking just a little bit bloated.

One of the biggest problems with Windows applications is that, once installed, they are not particularly easy to move to different drives or directories. Not only do they hide their different components in a maze of directories, but Windows also references them by full pathnames which are themselves hidden inside the Windows directory structure.

Simon the Sorcerer 2 works very well on the PC Card (see Games Update on page 51)

Congo... You've seen the film. Now play the game (see Games Update on page 51)

This is not too serious if you planned ahead when you created your PC partitions and started off with one or two huge partitions. The problem arises when you've created one smallish (say 200Mb) partition, filled it, and then created a second and filled that one as well. When you finally decide that it's time to add a 1Gb hard drive to your Risc PC and devote it entirely to your PC card, you discover that there's no easy way to move the PC applications and files from the two existing partitions to a single large one, and the simplest solution appears to be to reinstall everything, DOS and Windows included, from scratch.

Written and placed in the public domain by Andreas Walter, HDExtender doesn't (as its name suggests) allow you to increase the size of your existing PC partitions. Although this is theoretically possible, no one has yet come up with a utility to do it.

What it does do is to allow the PC card to access up to four PC partitions simultaneously instead of the usual two. This means that, in addition to having PC partitions 'drive_c' and 'drive_d', you can also now have 'drive_e' and 'drive_f', with CD-ROM drives starting at drive letter G if you use all four partitions.

Making all this possible is a tiny 948 byte module which you copy into the !PCx86 directory, and which is loaded by adding two lines to !PCx86's *!Run* file.

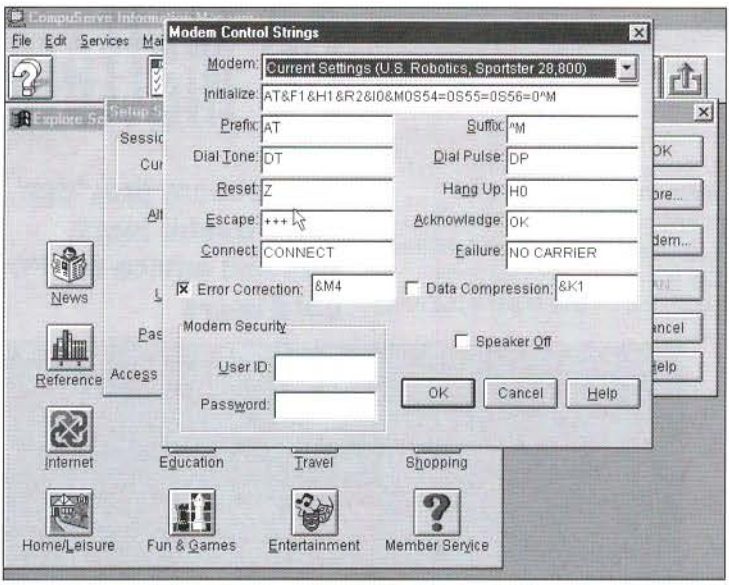


Figure 1. Setting the modem initialisation string for CompuServe and the US Robotics 28.8 modem.

An optional modification to !PCConfig allows you to create the additional partitions and add their details to the *!PCx86.Config* file automatically, or you can simply add the 'HD2-File-Name' and 'HD3-File-Name' references in *Edit*. And that's it really. In the few days that I've used it, HDExtender has worked flawlessly with no adverse effects on the PC card or software.

The second utility, Dan Simms' *PCJoy*, will be a boon to all PC games enthusiasts. It allows Acorn-compatible joysticks to be used with games running on the PC card, and has been successfully tested with VTi's single and dual PowerPads according to the author. It does not, however, work with the Falcon Analogue Joystick interface. Unfortunately I haven't been able to test the application myself, as when I pulled my PowerPads out of a long retirement I discovered that they needed to be upgraded to work with the Risc PC. Just shows when I last used them!

The Aleph One Web site

The Aleph One Web site at:

`http://www.ant.co.uk/~aleph1/`

provides all the latest information about what's happening in the PC card world. The site also contains links to the excellent, independently maintained, PC card site at:

`http://spodbox.linux.org.uk/~ultrasnd/acorn/pccard/index.html`

from which HDExtender and PCJoy can be obtained, and the comprehensive PC Games Compatibility List viewed.

Stripy icon update

In PC Matters in the March issue, I detailed a fix for the Windows 95 'stripy icon' problem. This involved deleting a file called *shelli~1* prior to starting Windows 95. Aleph One has now come up with a much nicer solution: a new version of the ARM Video Driver for Windows, ARMDRV.DRV, which fixes the actual 'stripy icon' bug as well as a few other obscure bugs. ARMDRV version 1.99 can be used with all versions of the PC card software since version 1.84, so it will work with the official release version from Acorn, !PCx86 1.91, which is supplied with all current Acorn PC Cards. ARMDRV version 1.99 can be obtained from Aleph One's FTP site at:

`ftp://ftp.ant.co.uk/com/aleph1/`

Beta versions

Aleph One is continually developing and improving the PC card software, and regularly releases new beta test versions of the software on the above FTP site. The most recent is !PC version 1.995L which, other than offering better Windows 95 compatibility and allegedly faster CD-ROM and hard drive access, doesn't provide any exciting new features such as VESA support or OS/2 drivers. It does however come with a warning that it can do serious damage to the data on your hard drive; beta testers don't always have an easy life!

The good news is that VESA support **is** coming, as are drivers for OS/2, the latest version of Linux and, independently from Aleph One, Windows NT. As far as VESA support is concerned, the current conjecture is that you will probably need a StrongARM processor to get decent performance. Of course, with a StrongARM processor, graphics on the PC card should absolutely fly.

All the software at the Aleph One site is available for anyone to download and use free of charge. The only thing to remember is that you use the beta test software at your own risk.

Accessing CompuServe with a US Robotics Sportster 28.8 modem

I have recently discovered the solution to a problem which, since I became a CompuServe member several months ago, has caused me endless problems accessing the World Wide Web via CompuServe's browser, *Mosaic*. As far as I know, the problem only occurs if you are using a US Robotics Sportster 28.8 modem with *WinCIM* 2.0, the CompuServe Information Manager for Windows, and have the *Use Winsock* option selected. WinCIM sends an initialisation string to the modem which, while working correctly in some cases,

usually causes the modem to time out either during connection or while downloading pages from the Web. The solution is to change the H, R and I values in the modem initialisation string. This can be achieved as follows.

Open the *Special* menu in the CompuServe Information Manager and click on *Session Settings...* to open the *Setup Session Settings* window. Ensure that *Use Winsock* is selected and then click on the *Modem...* button. The *Modem Control Strings* window (figure 1) will open. By default, the initialisation string for the US Robotics Sportster 28.8 uses the values H2, R1 and I2. These should be changed to H1, R2 and I0, so that the full initialisation string reads:

```
AT&F1&H1&R2&I0&M0S54=
0S55=0S56=0^M
```

You should also ensure that *Error Correction* is selected and set to &M4, and that *Data Compression* is unselected.

Games update

Several games have recently had the honour of running, with varying degrees of success, on my PC card. The common link between the games which run really well on the PC card is that they are all, with a few notable exceptions such as the Doom clones, graphic adventure games. *Congo*, *Simon the Sorcerer II* and *DiscWorld* all fall into this category.

Viacom's *Congo*, which is considerably more entertaining than the film on which it is based, runs very well on the DX2/66 processor. The only problem is that the digital sound is rather jumpy. MIDI playback through the ESP synthesizer is fine.

AdventureSoft's *Simon the Sorcerer II* also runs very well. Several users have reported having lots of problems getting MIDI output through the ESP synthesizer, suggesting that you need a real MIDI card and synthesizer to get MIDI playback. Although you do get far superior MIDI playback through something like the Audio Dynamics PowerWAVE card, I haven't had any problems using the ESP synthesizer with the game. Selecting the incorrect SoundBlaster driver during setup will cause problems, however. Speech and sound effects will be repeated during the game, and choosing the wrong driver may even cause the PC card to crash. Use the SoundBlaster Clone driver instead of the SoundBlaster/AWE driver for sound effects and speech and the MPU401-General MIDI driver for MIDI playback. You will not hear anything when the MIDI test is performed, but you will get MIDI sound during the game itself. Pressing F5 will fast forward through the very long introduction if you do select the incorrect driver.

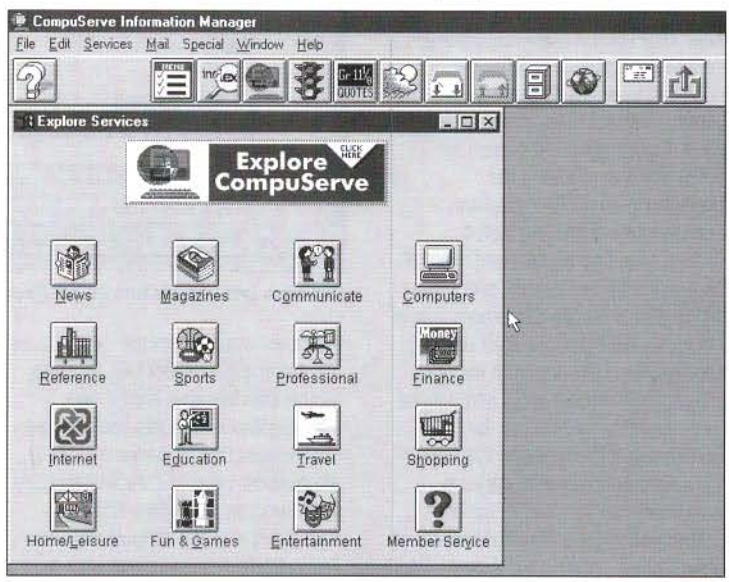
DiscWorld from Psygnosis is absolutely brilliant. Sound and MIDI playback is excellent, and even the full-screen scrolling is acceptably fast.

Gametek's *Elite 2 - First Encounters* runs reasonably well, but you're not going to get any sound at all. The same problem applies to *Command and Conquer*, which will run with no sound but will crash during installation if you try to configure a sound driver.

If you're into Chess games, *The Complete Chess System* from Oxford Softworks does not work correctly, crashing Windows with the charming message, "This application has violated system integrity due to the execution of an invalid instruction and will be terminated." You have been warned!

Ocean's demo version of *Duke Nukem* is very playable but the digital sound playback doesn't work correctly. MIDI playback is fine.

Finally, I recently tried out the demo version of the zany *Arcade America* from 7th Level. Platform-style games have usually performed disappointingly on the PC card, but the Arcade America demo, running under Windows 95, was so fast and smooth that it could have been running on a real PC. I just hope that the full version runs as well.



The PC Card allows you to make use of on-line services such as CompuServe, pictured above, and The Microsoft Network

PenDown DTP

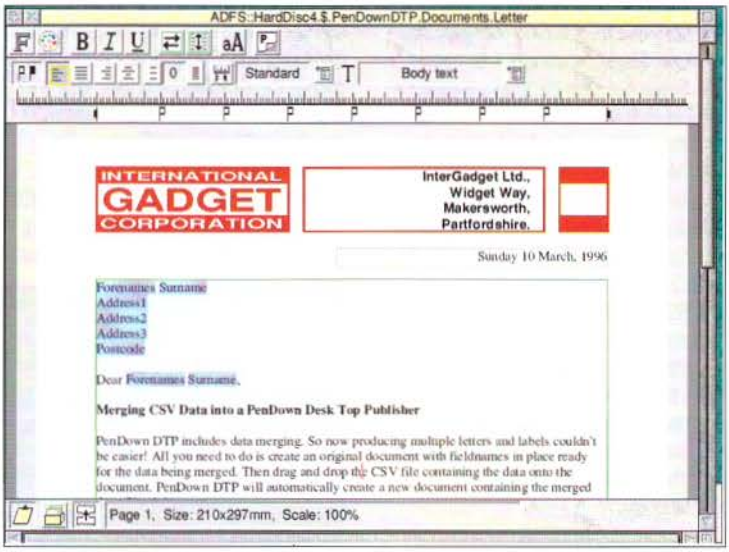
Peter Jennings finds his own level in a new multi-graded desktop publishing program

Longman Logotron's word processor, *PenDown*, which has long been a mainstay among educational software, has now emerged in a new desktop publishing version, replacing the company's *First Page* program. It comes on three discs, containing the application, a spelling checker, documentation and examples, accompanied by an A4-sized manual. This has thin card covers and seems rather flimsy for the classroom, but is obviously intended more for use by teachers or older pupils. It includes 11 pages of worksheets, printed in a large typeface, which can be photocopied; these guide the user in the creation of a greetings card, describing the process in simple steps accompanied by illustrations of what will be seen on the screen.

Unlike other desktop publishing programs, *PenDown DTP* comes in three integrated versions, allowing the standard of complexity to be set according to the age and ability of each user. Level 1, 2 or 3 can be chosen from the icon bar menu, and if that is not enough, you can create a new level for yourself with all the configuration options you prefer. Documents are completely interchangeable between levels, which can be switched at any time.

Starting simply

Level 1 is designed to make the application similar to the earlier

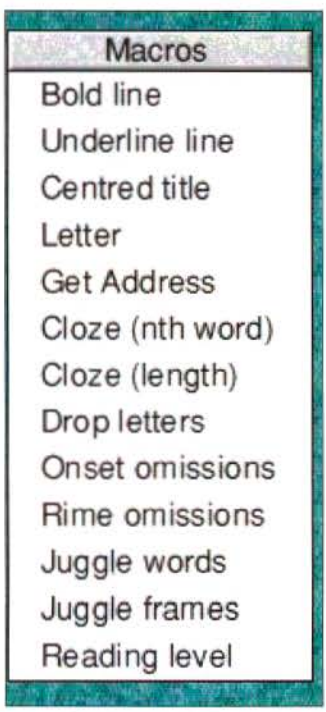

ADFS::HardDisc4.$.PenDownDTP.Documents.Letter
Standard
Body text
INTERNATIONAL GADGET CORPORATION
InterGadget Ltd.,
Widget Way,
Makersworth,
Partfordshire.
Sunday 10 March, 1996
Forenames Surname
Address1
Address2
Address3
Postcode
Dear Forenames Surname,
Merging CSV Data into a PenDown Desk Top Publisher
PenDown DTP includes data merging. So now producing multiple letters and labels couldn't be easier! All you need to do is create an original document with fieldnames in place ready for the data being merged. Then drag and drop the CSV file containing the data onto the document. PenDown DTP will automatically create a new document containing the merged
Page 1, Size: 210x297mm, Scale: 100%

Business letterheads can be designed with data merging used for mailshots

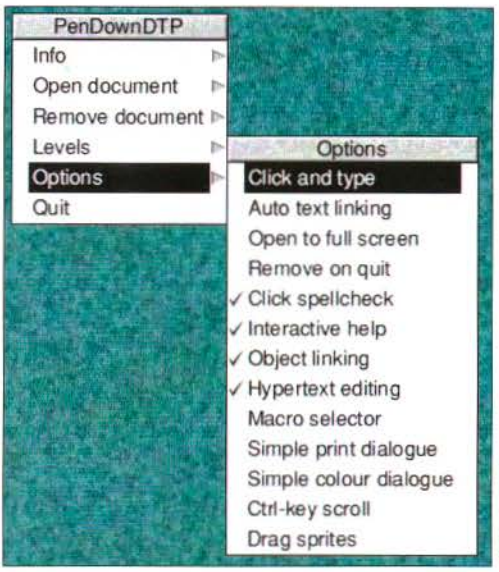
PenDown word processor, and it uses the same style of tool bar. Clicking on the icon bar icon brings up a dialogue box which lets you choose from a selection of *gadgets*, which are macros used to create stationery, or allows you to begin a DTP document with the default document, *Fresh Start*. A page opens with a small row of nine button icons at the top and three at the bottom, where there is also a help display line providing information on wherever the mouse pointer is placed.

The top row of buttons provides a choice of the font and text colour, bold, italic and underlined styles, justification and line spacing, the use of capital letters and movement between pages of the document. The lower buttons provide a clipboard, a frame store and an 'append document' facility.

Other features can be accessed from menus. These include the spelling checker, an undo facility, a



Some of the macros offered at level 3



The wide selection of options reflects the extent of the features available when working at level 3

find and replace window and the page size, orientation and background colours. There is a speech option which can be set to read out the whole or part of the document or individual letters, letter sounds, words or sentences as they are typed. The speed, pitch, volume and pauses can all be adjusted. Altogether, this is enough to offer a simple but workable introduction to the basics of desktop publishing.

Frames, sheets and gadgets

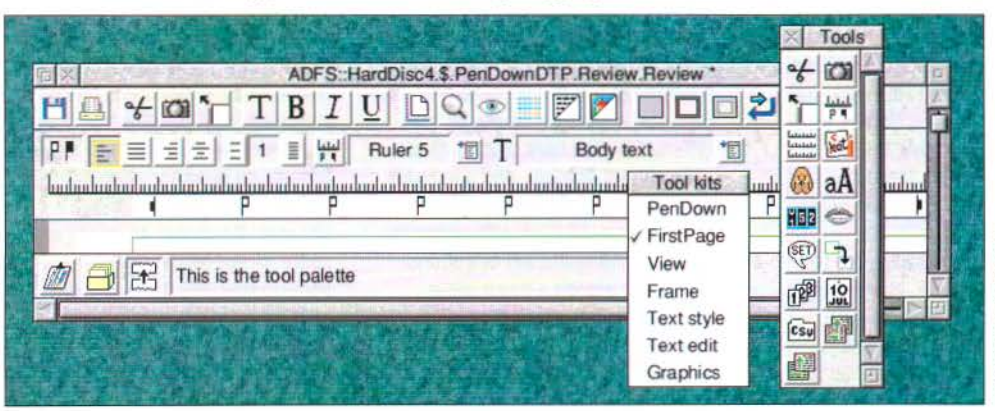
A new document is begun at level 1 by clicking anywhere on the page to place the caret. This automatically creates a text frame which can be resized, dragged to a new position, copied, stored, deleted, given a coloured, plain or patterned background and a border, if required. Additional frames can be created by clicking anywhere outside an existing one, and frames can be linked so that text flows between them, either on the same page or on different pages. Graphics can be dragged onto a page and will also be given a frame automatically. Any number of frames, each containing text or a graphic, can be named and stored by dragging them to the frame store icon, subject only to available disc space. Stored frames can be added to a document by dragging an icon to the required position on the page. A single frame can also be stored on the clipboard.

There is a very useful range of options for printing. Options allow documents to be reduced in size to fit a smaller page, to have two pages printed on the same sheet (either sequentially or ordered for subsequent folding into a booklet), or to have four pages on a sheet with the option of having two of them printed upside down, allowing the page to be folded to make a greetings card. At the other extreme, a large page can be tiled (spread across several sheets) without reducing its size.

The really fun part comes when using the oddly-named *gadgets*, which provide step-by-step instructions for creating a greetings card, invitation, certificate, newspaper or notice. Typical of these, the greetings card displays a choice of pictures for the cover and inside, and then offers a selection of messages and asks the user to fill in the sender's and recipient's names. The card can then be printed out with everything in the correct position to be folded into shape.

Increasing in complexity

Level 2 has an optional ruler, and offers an almost completely new tool bar at the top, which will be familiar to anyone who has used First Page. Only the three text style buttons remain the same as in level



Don't like the tool bar? Then choose another one, or even have two

PenDown DTP

Supplier Longman Logotron
124 Cambridge Science Park
Milton Road
Cambridge CB4 4ZS
Tel. 01223 425558
Fax 01223 425349
Email info@logo.com
Price £59 ex. VAT
See DTP News on page 18 for full details of site licence prices and discounts

1, and the program now offers facilities on the tool bar which were obtainable only by menus at the lower level. These include Save and Print icons, three tools for cutting, copying and pasting text, a *Typestyle* dialogue box which combines the font and text colour selector and allows new styles to be defined and named, buttons for the page size and shape, set scale and layout windows, new icons to provide a grid and to hide text and graphics, three frame-editing tools, and an Undo button.

Below this top array there is, optionally, a second line containing tab and indent markers, which can be dragged to the ruler immediately underneath, buttons to justify or centre the text, and two more to increase or decrease the space between lines. These last two can be rather confusing, as it would seem more natural to have a single button which would change the spacing by, say, clicking Select to increase it and Adjust to reduce it. Instead, each icon treats either a Select- or Adjust-click as being the same command. Finally, there are tools to create and select new rulers and a text style selector.

At level 2 it is necessary to define a text frame, by dragging a rectangle to the required size, before the caret can be positioned. Frames can now be saved as a new PenDown DTP document or as text, with an option to include any other frames linked with them. A frame containing a graphic can be saved as either a sprite or a Draw file. Marked text can also be saved as a text file. Files can be saved in a compressed format which will be automatically decompressed when reopened.

A *Text insert* menu offers the useful facilities of moving all the text after the caret into the next linked frame, inserting page numbers, and adding either the day's date or a date token which will insert the current date every time the document is loaded.

The User Guide devotes nine pages to describing how frames can be manipulated, copied and stored. They can be snapped to other frames, locked in size and position, and stacked in variable orders. A text frame can be converted into a graphic and manipulated as such. Very usefully, though, a double-click within the frame loads the contents into a text editor, where it can be edited as normal and then returned to its frame; this allows it to retain any graphical features (such as being rotated or reflected) which it has had applied.

Fully functional

Rather oddly, level 3 is not described in the User Guide, but in a document on disc which is easy to miss. When a level 3 document is opened, it appears from a first glance at the tool bar that it is the same as level 1 except that it can have the optional ruler of level 2. In fact, there is now a choice of seven different button bars, each with a different set of tools, and a movable tool window which can be used instead or in addition with either the same or a different set of buttons. These are among a much wider range of features including an *Options* entry on the icon bar menu, replacing *Gadgets* and having a Macro selector instead. A command language is now revealed with keywords which, combined with the Options and Macro facilities, make the application very flexible indeed. These new features are all explained in a hypertext document, and hypertext creation and editing are now also among the facilities included.

One unexpected feature to find in a desktop publishing program is animation. PenDown DTP checks any sprite file containing more than one image, and will run it as an animation. This can add a lively touch to a magazine or other document on screen, and I look forward to a hard copy version!

Summing up

There were a few problems with the early review copy, which crashed a couple of times, losing any unsaved work; these problems are being worked on at the time of writing. The current line flickered badly while typing, and the caret could become misplaced so that it appeared on a character instead of beside it, thus making it difficult to delete or make additions in the correct place. This last problem is caused by the font manager when using an unsuitable scale for the page size and screen mode in use. It happened to me in 800 x 600 mode when the document was opened at a scale of 102%, but was easily cured by changing the scale to 100%.

PenDown DTP is not intended to be in the professional league of Ovation and Impression, but its versatility and imaginative range of features give it more than enough to fulfil its aims for educational use and to make it of wider interest. Its choice of levels enable users of any ability to feel comfortable with it, and there is nothing childish in its appearance to deter adult users.

Netline

Robin Watts talks about Talkers

In previous columns we have discussed various different Internet-centred activities (such as email, news and the WWW), but all of these have involved relatively little interactivity. An email message can take hours or days to get a response, a news posting even longer. Even with the much hyped user-interaction of Java on the Web, you are still ultimately talking to an automaton. Faced with this, it can seem that Cyberspace is a pretty lonely place to spend an evening.

The situation is not truly that bleak, though. Sprinkled across the Net are various *talkers*; each of these provides a way for many people to interact in real time.

The details of how each talker works are different, but there are broad similarities. Once logged on to a talker, anything a user types to the screen is broadcast to everyone else, and displayed on their terminals. If an interesting conversation ensues, some users can gather into a separate group and continue the discussion there so that they don't disturb others.

A good 'first talker' to try out is at `oaktree.zynet.co.uk`, written by James Ponder of Doggysoft (*aka* Squish). This runs on port 9000, so to log on, either set your telnet client to access this, or look up the following URL in your Web browser:

`telnet://oaktree.zynet.co.uk:9000/`

Once the intro screen has been displayed, give a nickname to the talker and you're in. From now on, pretty much anything you type will be heard by everyone else in the *Public* group. Most talkers provide ways of 'tuning' the setups, changing groups, etc., and the Oaktree talker is no exception. Any line beginning with a "." is interpreted as a command, so entering `.help commands` is probably a good way to start.

The Oaktree is probably busiest during the afternoons and evenings of University term times, as a significant proportion of its users are students who get free access to the Net.

The *Monochrome* Internet BBS (mentioned in the *Watts On The Net* article on page 28) also has a talker, and, whilst this is less Acorn-centred, you can join conversations on almost any subject. To access the talker, use *Escape-T* from anywhere on the BBS.

The final talker I want to mention, is the mother of them all, *Internet Relay Chat*, or *IRC* for short. IRC operates by having a string of machines around the Internet that forward conversations between them in real time. This means that conversations can be held between people on different sides of the globe, albeit with lag times varying from a few seconds to a minute or so.

As the news system uses *groups* to keep discussions separate, IRC uses *channels*. The Acorn discussions can be found (predictably enough) on channel `acorn`. To join in with IRC, you need to find the closest IRC server, and telnet to it.

In general, you should use the server as close to you on the Net as possible to get the fastest response, but it is not always obvious which server this is; nearby heavily-loaded servers may give worse reponse times than more distant lightly-loaded ones. Also, some IRC servers limit the connections they will accept to those within a given area of the Net; for instance `irc.demon.co.uk` will often refuse to allow connections from anyone who is not a Demon subscriber. Confusingly, though, this does not always appear to be the case, so it's worth trying your luck. To connect to the Demon server, use:

`telnet irc.demon.co.uk 6667`

or point your web browser at:

`telnet://irc.demon.co.uk:6667/`

A list of some other IRC servers is given below; for a full list, check out the *alt.irc* newsgroup.

`irc.demon.co.uk`
`stork.doc.ic.ac.uk`
`serv.eng.abdn.ac.uk`
`sun1.bham.ac.uk`
`supercomputer.swan.ac.uk`
`cent1.lancs.ac.uk`
`coanwood.ncl.ac.uk`
`irc.unix-lyon1.fr`
`irc.funet.fi`

Table 1: IRC servers (all on port 6667)

Once you are connected to IRC, use `/join #acorn` to get into the discussion, and `/who` to see who else is already there. Apparently Sunday evenings are the busiest times on the *acorn* channel, so if you decide to try it out, then this is probably the best time to do so.

Finally, to get a list of all the currently open channels that you can join, use:

`/list -public -wide name`

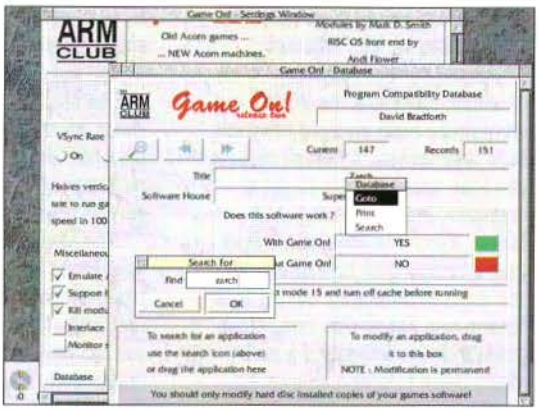
Be warned; this can produce a huge list of channels of which only a very small number will be of interest. It may be worth doing this command once and saving the output, though, as the 'good' channels tend to recur again and again, so searching through the list of groups while off-line may give you some good ideas as to which channels will interest you.

Mini Reviews

A fair exchange: running Archimedes games on a Risc PC, and getting Risc PC-style large desktops on an Archimedes

Game On! release 2

by David Bradforth



One unique thing about the Acorn market is the way in which RISC OS enthusiasts are the ones who, in the main, provide the main impetus for Acorn machines to continue being purchased, both inside and outside the educational arena. So there are, in theory, many thousands of Acorn users who have been with RISC OS from the start, and who therefore have an awful lot of software which used to work on their RISC OS 2 A310s but, sadly, works no longer. Enter *Game On!* from The ARM Club, which is intended to persuade software released on older Archimedes machines to work on the Risc PC.

Game On! is provided on a single high density disc along with full supporting documentation (both in the form of a manual and as a *ReadMe* file on the disc). Installing it is simply a matter of double-clicking on the *GOInstall* icon, after which the program requests that you type in your name for unique identification; and then you select where you wish to store the program. In terms of providing protection which is effective whilst not discriminating against the legitimate user, this is surely the best method: the only noticeable feature of the protection in Game On! is that your name appears as part of the *About this program* window. Well done to The ARM Club, then, for such consideration! The disc also contains some Monitor Description files which make the CGA resolution modes fill the entire screen, rather than appearing in a 'letter box' shape (which is usually the case with the SVGA monitor supplied with the Risc PC).

The documentation is, at times, excessively complex: whilst most Acorn users will have a need for the package, not everyone needs to have the details of the SWIs which Game On! provides; this can prove to be an unnecessary distraction. However, the manual is undeniably very complete; if you're not sure about some aspect of Game On!, then this manual will certainly tell you about what you want to know. It's an excellent reference for the software in virtually every respect.

There are two main components to Game On!: the *GameOn!* application itself, and a separate database which goes by the name of *GameBase*. GameOn! is the application which needs to be run in order to allow classic games (such as *Zarch*, which would not otherwise run on the Risc PC) to work correctly. It's worth pointing out that Game On! does not only allow games to work; utilities such as *65Host* are available for the first time, thus allowing you to access your favourite Beebug magazine programs on your Risc PC!

The *GameBase* application is the database section of Game On. This details the games which can work on the Risc PC with Game On, and the games which work without it, and also those which don't work at all. It is also possible to patch certain titles.

The GameBase application allows you to search for a title either by dragging its program icon to a window on the desktop, or by typing in a name for the application. Once you have found the details of an application, you can (in theory) print these details off. The only catch with this is that it refused to work with a Calligraph direct-drive laser printer; and crashed the machine in the process. This needs sorting out!

In conclusion, Game On is an application which will prove to be one of the most useful additions to any Risc PC or A7000 user's utilities collection. If you have a game which you're dying to play, but are unable to because of compatibility problems, get hold of Game On!; it may well be the wisest £15 you've ever spent on a small utility, and you will probably use it on a regular basis. Buy it now!

Product	***Game On!***
Supplier	***The ARM Club***
	FREEPOST ND6573
	London N12 0BR
	Tel. 0171 624 9918
	Fax 0181 446 3020
Price	***£15.00 (no VAT)***

ViVID 5000

by Matt Browne

At the Annual General Meeting of The ARM Club, iSV Products released a new incarnation of their *ViVID* package, written exclusively for the A5000. Entertainingly called *ViVID 5000*, it is specially designed for people who (like me) are still clinging on to their ageing A5000s and want to improve their machines' display capabilities without the expense of a graphics card such as the *ColourCard* from Computer Concepts.

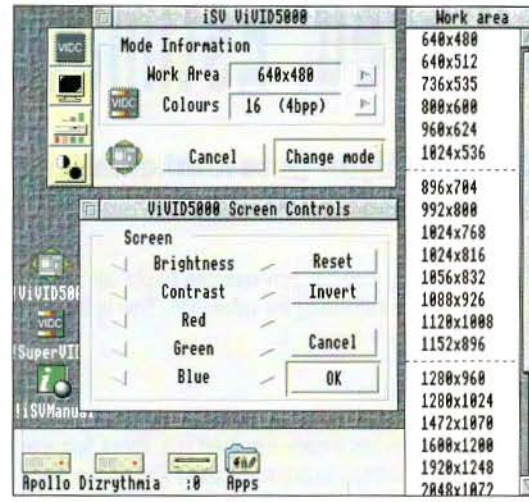
ViVID20, the version of ViVID which is available for older machines, was reviewed by Alan Bonsor in RISC User 8:10, page 29, and received a suitably warm reception. It really is an excellent product, allowing any appropriately-upgraded Archimedes to have screen modes in resolutions that would normally be restricted to lucky Risc PC and A7000 users. And, to top it off, it is wrapped around an excellent user interface, resembling the Risc PC mode selector.

ViVID 5000 is like ViVID20 but with major enhancements. Firstly, and rather unimportantly, the already excellent user interface has been improved, dispensing with the slightly clumsy icon bar menu structure in favour of a fashionable tool bar approach, which attaches itself to the main window.

The second enhancement is in the range of screen modes supplied. Using ViVID 5000 it is possible to obtain screen modes even larger than those available on the Risc PC! The range of modes available goes even further than ViVID20. It can offer desktops of up to 2240 × 2016 in size, and 256-colour versions of most resolutions, including 1056 × 832 and 1472 × 1070; and it can even produce 1600 × 1200 in 256 colours on some machines. Most of these bigger modes are 'virtual', offering a large desktop work area but with a reduced number of actual pixels. The dot pitch of most 14" monitors makes these modes hard to tell apart from the real thing, though.

It has been discovered that some A5000 and A540 systems (and possibly other models too) were manufactured with VIDC chips of a slightly higher specification than others, which they describe as *Super VIDC*s. The machines can consequently produce 256-colour screens at 25.18MHz, a slightly higher frequency than the normal rate of around 24MHz. This makes absolutely no difference in normal operation, but ViVID 5000 includes a small utility that checks to see if the machine it is run on is fitted with a Super VIDC. If it is equipped with the better VIDC, then it can display extra modes, including the impressive 1600 × 1200 one in 256 colours.

ViVID 5000 has various other features besides the ability to produce screen modes of extraordinary resolutions. You can test the speed of any mode, which is useful if you're trying to choose a mode to use for everyday usage. The brightness, contrast and red, green and blue components of your desktop can be altered without the need to touch your monitor. Several pre-defined colour palettes are also supplied (although I have yet to think of a use for them) to emulate amber, blue and green-screen monitors, and a special set of colour schemes is provided for grey-scale modes.



My initial reaction to the ability to show incredibly large screens on your desktop is one of scepticism. Larger desktops are very useful for any situation that is helped by having a lot of text on-screen at once, like DTP and even programming work. However, resolutions of around 2240 × 2016 are very limited in their usefulness due to the quality of most monitors. The AKF18 monitors that were sold with most A5000s are of relatively poor quality, in fact, and any attempt at detail at a resolution of 2240 × 2016 is absolutely futile, resulting in nothing but a grotty, fuzzy mess. This is not a general problem with ViVID 5000 itself, though, so if you have an exceptionally good quality monitor you can enjoy the immense resolution and gloat at the poor AKF18 owners!

Despite my reservations about using the larger modes on low-quality monitors, I still have no hesitation in saying that ViVID 5000 is an essential purchase for any A5000 owner. Users of ViVID20 who want to upgrade their copy to ViVID 5000 can do so by sending their original disc and payment of £5 to iSV.

Product	***ViVID 5000***
Supplier	***iSV Products***
	86 Turnberry
	Home Farm, Bracknell
	Berks RG12 8ZH
	Tel. 01344 55769
Price	***£16.50 (no VAT)***
	Upgrade from ViVID20: £5 (no VAT)

Pi Eyed: Estimation of Pi

Richard Taylor puts mathematics into motion

The following program demonstrates graphically two methods of estimating the value of Pi. Type in the listing, save it and run it.

Raindrop Prelude

The first estimation method involves raindrops falling on a square tile which has a circle inscribed in it. Press Space to cause single raindrops to fall. If you press Return, the drops will fall rapidly until you press Return again. The screen displays the total number of drops and 'hits' (i.e. the number of raindrops which have landed in the circle). A new estimate of Pi is calculated after every 25 drops by the formula:

```
Estimate of Pi = 4*(no. of hits)/
(no. of drops)
```

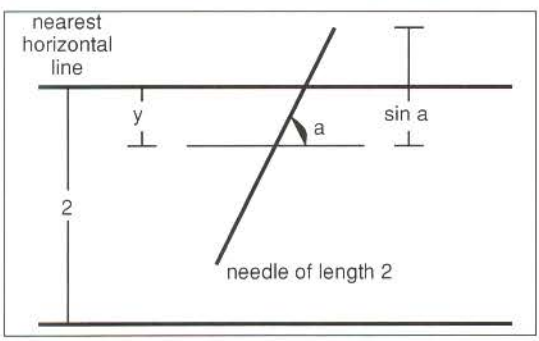


Figure 1

This should make sense if you consider that the area of a unit circle (a circle of radius 1 and of diameter 2) is Pi, and that the area of the square around it is 4 (2 * 2). So you would expect the number of drops landing inside the circle, divided by the total number of drops, to be an estimate of Pi/4. So we have:

```
(no. of hits)/(no. of drops) =
(Estimate of Pi)/4
```

which, when rearranged, is the above formula.

The program displays the estimate graphically. At the beginning, the estimates are invariably very inaccurate, but after many thousands of drops have fallen, the estimate will become more and more reasonable.

Pi of the needle

The second method of estimation, *Buffon's needle*, may be seen by pressing 2 on the keyboard (pressing 1 restarts the first method). This time, horizontal lines are drawn, and needles (which have the same length as the distance between the lines) are dropped in random positions and orientations. Space and Return serve the same functions as before. A 'hit' is recorded if any part of the needle touches a horizontal line. The formula in this case is somewhat different:

```
Estimate of Pi = 2*(no. of drops)/
(no. of hits)
```

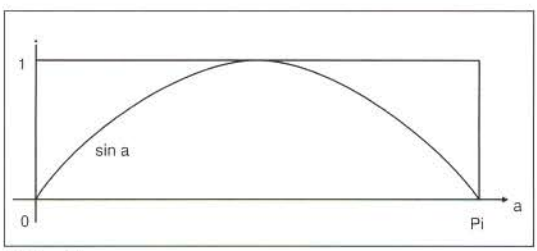


Figure 2

The reason why this formula works is a good deal more complicated and involves some understanding of probability and simple trigonometry. Two random variables are important. The first is the distance, *y*, from the centre of the pin to the nearest horizontal line. If the distance between the lines is 2 units, then *y* is a uniform random variable from 0 to 1. The second variable is *a*, the angle of orientation of the needle to the horizontal, which may range uniformly from 0 to Pi. A 'hit' is recorded if *y* is less than *sin a* (see figure 1).

Now consider a graph of *y* against *a* (see figure 2); a rectangle drawn on it, whose sides represent the ranges of *y* and *a*, represents the probability event space (all possible combinations of *y* and *a*) and has an area of Pi. The graph of *sin a* is drawn within this rectangle, starting at (0, 0), going through (Pi/2, 1) and finishing at (Pi, 0). The area under the curve is the area of the event space when *y* is less than *sin a*; i.e. it represents the times when the needle touches a line. By integration we can show that it has an area of 2. Thus, the probability of a 'hit' is 2/Pi (the area under the curve divided by the area of the rectangle). So we would expect the number of hits divided by the number of needle drops to approach 2/Pi. In other words,

```
(no. of hits)/(no. of drops) = 2/
(Estimate of Pi)
```

which, when rearranged, is the formula above.

```
   10 REM >Estimate
   20 REM Program   Estimate:
   30 REM           Estimation of Pi
   40 REM Version   0.1
   50 REM Author    Richard Taylor
   60 REM RISC User May 1996
   70 REM Program   Subject to Copyright
   80 REM           Not Public Domain
   90 :
  100 ON ERROR CLS:IF ERR<>17 THEN PRINT
 REPORT$+" at line ";ERL:END ELSE END
  110 MODE 1
  120 VDU 23,128,2,126,84,20,20,54,0,0
  130 COLOUR 1,4:COLOUR 2,6:method%=1
  140 p%=(PI-3)/0.3*600
  150 REPEAT
  160  PROCsetup
  170  REPEAT
  180   PROCdrop
  190   REPEAT
  200    i%=INKEY(0):PROCkey
  210   UNTIL ok% OR change%
  220  UNTIL change%
  230 UNTIL FALSE
  240 :
  250 DEFPROCsetup
  260 CLS:GCOL 3:ORIGIN 300,500
  270 IF method%=1 THEN
  280  CIRCLE 0,0,300:RECTANGLE -300,-30
0,600
  290 ELSE
  300  FOR n%=-270 TO 270 STEP 60
  310   LINE -300,n%,300,n%
  320  NEXT
  330 ENDIF
  340 ORIGIN 680,200:LINE 0,0,0,600
  350 FOR n%=0 TO 600 STEP 200
  360  LINE -16,n%,0,n%
  370 NEXT
  380 GCOL 2:VDU 5:LINE 4,p%,599,p%
  390 MOVE 8,-4:PRINT "3.0"
  400 MOVE 8,632:PRINT "3.3"
  410 MOVE -36,p%+16:VDU 128
  420 GCOL 1:VDU 4:OFF
  430 PRINTTAB(0,0)"Drops"TAB(15,0)"Hits
"TAB(0,2)"Estimate = "
  440 drops%=0:hits%=0:grx%=0:gry%=0
  450 x=-1000:y=-1000:ang=0
  460 c=0:s=0:change%=FALSE:stop%=TRUE
  470 ENDPROC
  480 :
  490 DEFPROCdrop
  500 ORIGIN 300,500
  510 IF method%=1 THEN
  520  GCOL 3,2:CIRCLE x,y,24
  530  GCOL 3,3:POINT x,y
  540  x=(RND(1)-0.5)*600:y=(RND(1)-0.5)
*600
  550  GCOL 3,2:CIRCLE x,y,24
  560  GCOL 3,2:POINT x,y
  570  IF x*x+y*y < 90000 THEN hits%+=1
  580 ELSE
  590  GCOL 3,3:LINE x-c,y-s,x+c,y+s
  600  x=(RND(1)-0.5)*600:y=(RND(1)-0.5)
*600
  610  ang=RND(1)*PI:c=30*COSang:s=30*SI
Nang
  620  GCOL 3,2:LINE x-c,y-s,x+c,y+s
  630  dist=ABS(y-(y DIV 60)*60)-30
  640  IF ABS(dist) < ABS(s) THEN hits%+
=1
  650 ENDIF
  660 drops%+=1
  670 PRINTTAB(6,0);drops%;TAB(20,0);hit
s%
  680 IF drops% MOD 25 = 0 THEN PROCesti
mate
  690 ENDPROC
  700 :
  710 DEFPROCestimate
  720 ORIGIN 680,200
  730 VDU 24,0;0;599;599;
  740 IF method%=1 THEN
  750  estimate=4*hits%/drops%
  760  PRINTTAB(11,2)"4*";hits%"/";drops
%" = ";estimate;SPC(10)
  770 ELSE
  780  estimate=2*drops%/hits%
  790  PRINTTAB(11,2);"2*";drops%"/";hit
s%" = ";estimate;SPC(10)
  800 ENDIF
  810 IF grx% < 596 THEN
  820  grx%+=4
  830 ELSE
  840  RECTANGLE 8,0,600 TO 4,0
  850  GCOL 2:POINT 596,p%
  860 ENDIF
  870 MOVE grx%,gry%
  880 gry%=(estimate-3)/0.3*600
  890 IF grx%=4 THEN MOVE 4,gry%
  900 GCOL 1:DRAW grx%,gry%:VDU 26
  910 ENDPROC
  920 :
  930 DEFPROCkey
  940 IF stop% THEN ok%=FALSE ELSE ok%=T
RUE
  950 CASE CHR$i% OF
  960  WHEN CHR$13 :stop%=NOT stop%
  970  WHEN " " : ok%=TRUE
  980  WHEN "1" : method%=1:change%=TRUE
  990  WHEN "2" : method%=2:change%=TRUE
 1000 ENDCASE
 1010 ENDPROC
```

FEATURE

RISC User Puzzle

Win a magazine and disc subscription with our regular puzzle feature. Puzzle designed by Roger King

To enter, send a copy of the completed puzzle to the Beebug offices in an envelope marked 'Puzzle', together with your name, address and membership number. The magazine disc contains the puzzle as a Draw file, and we suggest that you use Draw to complete the puzzle on the screen, then print out and send us your solution. The closing date is 1st June.

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Hidden in the grid are the years of six famous British battles. The snag is that they are shown in hexadecimal format! Each year is represented by a group of three hexadecimal digits which are linked horizontally, vertically or diagonally. Send in your solution as a list of the battles, with their decimal year equivalents.

E	1	B	F	C	A	B	E
7	C	3	B	A	E	D	F
0	8	5	C	D	D	0	E
D	A	F	0	1	C	7	B
1	9	6	4	D	7	9	B
A	7	5	A	8	7	4	8
3	1	9	5	C	A	E	4
8	B	0	3	4	2	A	F

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The winner of the Jan/Feb puzzle is **N.A.Griffiths** (solution on page 62).

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Solution - Jan/Feb Puzzle Winner: N.A.Griffiths

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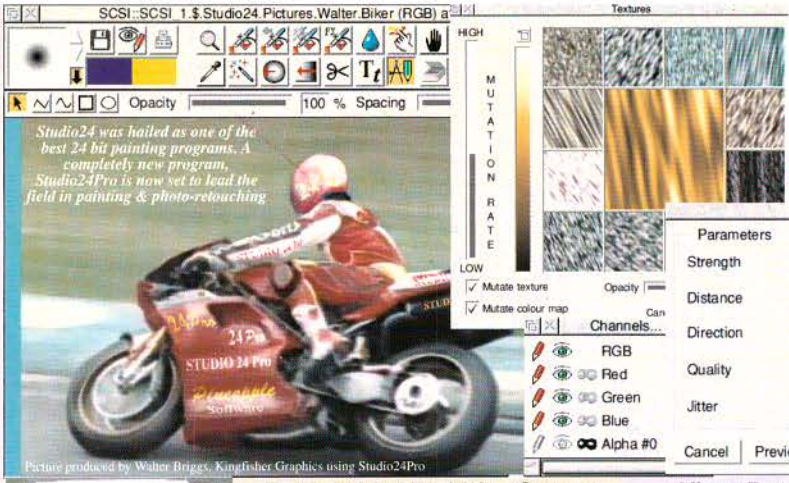
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* Over 40 pre-defined filters including Spinblur, Motion blur &Light
* PhotoCD and Scanner input * Merging of Bitmap & Draw file
* Built in Draw file creation * RGB, CMYK or Indexed channel mo
* Up to 16, 8 bit mask channels * Filter preview window

Studio24Pro £149.8
inc vat

'Many Acorn U
front covers ha
been create
from scratch
using this
program alon
concrete proof
the power of t
creative tool'
Acorn User
March 96

Removable Harddrive System
Total Data Security & Harddisc Backup

The removable harddrive system fits into a 5¼" drive slot in the RiscPC and harddrives are available in many sizes which can simply plug in and out of the slot as required. The drive may be locked in place to prevent unauthorized removal. For total security the drive may be removed and stored in a safe place to prevent unauthorized access to your data. Because the removable drives are available in any size (up to at least 4Gb) they are also ideal for use as backups for existing harddrives, and may be easily transported between different computers for rapid transfer of large datafiles. The system is available for use with both IDE and SCSI filing systems.
External boxes are available to enable SCSI removable drives to be used with older Acorn models. Please 'phone for details.See opposite for prices.

PAL TV Coders

PLC/3 £104.57

The PLC/3 PAL TV Coder works in any of the Acorn 'Standard' Modes, (12 and 15) on all Acorn computer models. It has a 15 pin RGB output for the monitor, a BNC for video and an S-VHS connector. The PLC/3 will work with RiscPC computers although the AKF60, AKF85 and AKF90 will not work at the same time.

AVK/3 £355.00

The AVK/3 will work with all computer models in all screen modes up to 800 x 600 resolution in 16 million colours. It has a remote control with facilities for zooming, freezing & panning the TV picture. Ideal for lectures and demonstrations etc. A SCART gives TV frequency RGB O/P which can be used for large screen TV's, and a phono socket for composite video and an S-VHS socket for S-Video are provided.

ArtWorks Video Tutorial

A Brand new product from Pineapple is this VHS Video Tutorial covering the use of ArtWorks.
Walter Briggs is the tutor for this 1 hour video which shows how to use all the ArtWorks tools and then goes on to show how Walter produced his famous Tiger head picture. Walter also draws an impressive landscape picture which can be copied by those with no artistic talent at all!

ArtWorks Video Tutorial £19.99

24 Bit Colour Scanners

Pineapple can offer a wide range of Flatbed A4 colour scanners starting from as low as £359 including software and vat!
The Epson range is currently the most popular although Canon are expected to release a new scanner to replace their IX-4015 shortly. The cheapest in the Epson range is the GT5000 with an optical resolution of 300dpi. This is adequate for virtually all home use. The GT5000 is available with either a parallel or a SCSI interface. The GT8500 has an optical resolution of 400dpi and comes with both parallel and SCSI interfaces. Finally, the GT9000 is the top of the range with an optical resolution of 600dpi and both parallel and SCSI interfaces. Imagemaster and Twain software are included in the price, but we also offer our Studio24Pro Photo re-touching software at just £80.00 inc vat with every scanner purchase.

20 : 20 Finance available on all RiscPC's
Studio24Pro at just £49.00 with any RiscPC purchase
Studio24Pro at just £80.00 with any colour scanner
FREE membership of the Virus Protection Scheme with any RiscPC

Virus Protection

The Pineapple Virus Protection Scheme will allow you to detect and remove over 100 viruses from your Acorn computer.
'If you're interested in virus protection, join the Pineapple virus protection scheme and buy Killer. Accept no alternatives.'
- *Acorn User Feb 96*

Multimedia Speakers

Yamaha 10 Watt YST-M10	£63.00

A4 Colour Scanners

Primax Flatbed A4	£359
Epson GT5000 (parallel)	£425
Epson GT5000 (SCSI)	£499
Epson GT8500	£569
Epson GT9000	£699

All scanners include Imagemaster & Twain. Studio24Pro at just £80.00

A7000 Computers

4Mb HD425	14" Mon	£1019
4Mb HD425CD	14" Mon	£1139

RiscPC 600 Computers

4Mb HD425	14" Mon	£1325
4Mb HD425CD	14" Mon	£1450
4Mb HD425	17" Mon	£1699
4Mb HD425CD	17" Mon	£1825

RiscPC 700 Computers

5Mb HD425	14" Mon	£1550
5Mb HD425	17" Mon	£1925
5Mb HD425CD	14" Mon	£1699
5Mb HD425CD	17" Mon	£2049
10Mb HD850	14" Mon	£1949
10Mb HD850	17" Mon	£2299
10Mb HD850CD	14" Mon	£2069
10Mb HD850CD	17" Mon	£2425

PC Cards

	Separately	with RiscPC
SXL-33 Card	£233.83	£116.32
DX2-66 Card	£289.00	£169.00
DX4-100 Card	£349.00	£229.00
586-100 Card	£579.00	£459.00

CDRom Drives

x4 Speed CDRom	£140.00
x6 Speed CDRom	£233.82

Memory Upgrades

1Mb to 2Mb Vram	£116.32
2Mb Vram	£233.83
4Mb SIMM Ram	£ 99.00
8Mb SIMM Ram	£199.00
16Mb SIMM Ram	£389.00
32Mb SIMM Ram	£775.00
RiscPC Sound Card	£70.44

All our prices INCLUDE 17.5% vat & delivery!

Printers

Citizen Print*iva* 600C

Citizen		
PRINT*iva* 600C		£399.
Hewlett Packard		
Laserjet 5L	4ppm	£458.
Deskjet 600		£231.
Deskjet 660	colour	£315.
Deskjet 850	colour	£415.
Canon		
BJC600E	colour	£375.
BJC610	col 720dpi	£415.
BJC4000	colour	£276.
BJC4100	col 720dpi	£276.
BJC200	mono	£205.
BJC210	(col option)	£222.
Epson		
Stylus Colour II		£329.
Stylus Colour IIS		£244.
Stylus Pro XL (A3)		£1079.

3.5" Bare Harddrives

540Mb	IDE	£149.
850Mb	IDE	£169.
1.0Gb	IDE	£225.
1.0Gb	SCSI	£235.
2.0Gb	SCSI	£659.
4.0Gb	SCSI	£938.

Removable Harddrive

IDE Mounting Kit		£ 25.
540Mb	IDE	£168.
850Mb	IDE	£188.
1.0Gb	IDE	£244.
SCSI Mounting Kit		£ 29.
1.0Gb	SCSI	£255.
2.0Gb	SCSI	£679.
4.0Gb	SCSI	£958.
External Mounting Box		£ 89.

SCSI Systems

SCSI Card	£116.
SCSI Internal Cable	£ 9.
SCSI External Cable	£ 19.
SCSI II Card	£189.
SCSI II Internal Cable	£ 9.
SCSI II External Cable	£ 22.

Monitors

14" 0.28mm DPMS	£179
14" 0.28mm MPRII	£189
15" 0.28mm MPRII	£309
17" 0.28mm MPRII	£556
21" 0.28mm MPRII	£'Phc
Ilyama Visionmaster	
17" 0.26mm MF8617E	£635
17" 0.25mm MF9017E	£699

!! Special RiscPC offer !!

A Quad speed CDRom drive for just £60 with any RiscPC

Pineapple Software
Suites 13 & 14
South Park Business Centre
310 Green Lane, Ilford
Essex IG1 1XT
Tel 0181 599 1476 Fax 0181 598 2343

Terms:- All prices ***include*** 17.5% vat. Carriage FREE to mainland U.K. Phone for quote outside U.K. Official orders, cheques and all major credit cards accepted. Money back guarantee on all products.

'Pineapple offer some of the finest and friendliest after-sales support you will find' - Acorn User Mar 96

Why not come and visit us (easy parking) where you can see most of the Acorn range of computers and other hardware in action.

Acorn CENTRES OF TECHNOLOGY